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A CASE STUDY AND BUSINESS ANALYSIS OF THE SCRAP INDUSTRY

RESOURCE PLANNING INSTITUTE

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A CASE STUDY AND BUSINESS ANALYSIS OF THE SCRAP INDUSTRY

By

Resource Planning Institute
Cambridge, Massachusetts

Program Element No. 1DA312

Project Officer

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This report presents case studies of four firms representative of major segments of the scrap processing industry. Each case study describes the operation of a scrap processing firm, including its history, operating procedures, marketing and financial information. The report also presents a business analysis of the case study data that compares and contrasts the operating characteristics of each firm.

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FOREWORD

Man and his environment must be protected from the adverse effects of pesticides, radiation, noise and other forms of pollution, and the unwise management of solid waste. Efforts to protect the environment require a focus that recognizes the interplay between the components of our physical environment--air, water, and land. The National Environmental Research Centers provide this multidisciplinary focus through programs engaged in

- studies on the effects of environmental contaminants on man and the biosphere, and
- a search for ways to prevent contamination and to recycle valuable resources.

As part of these activities, the study analyzes the scrap processing industry and describes the operation of four scrap processing firms.

A. W. Breidenbach, Ph.D.
Director
National Environmental
Research Center, Cincinnati

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I Introduction

This report presents the results of an analysis of the Scrap Processing Industry conducted by Resource Planning Institute of Cambridge, Massachusetts. The purpose of the study was to fully characterize a number of representative firms in this industry by using the case study method.

Section II of the report presents an analysis of the data developed in the cases. It is included both to illustrate methods for analyzing the date and to identify critical factors in the operation of the firms studied.

Section III presents the case studies for each firm. The names and locations have been disguised and, data on a specific firm has been modified to provide a more complete disguise. In some cases the information on a specific firm was modified to either provide a better disguise or to eliminate non-representative characteristics.

II. BUSINESS ANALYSIS

Introduction

The Business Analysis section presents a sampling of the type of analysis that can be performed with detailed case study information. Standard financial analysis techniques such as ratio analysis and value added analysis were used.

The section is divided into 4 subsections: the Characterization subsection puts the four firms studied into perspective in their industry segment, the Operations and Management subsection analyzes the internal functional aspects of the firms, the Marketing subsection assesses the important buying and selling operations, and the Finance subsection characterizes and analyzes financial operations.

Characterization

This section characterizes each firm and identifies a number of the significant aspects of each. The discussions put the firms into perspective relative to each other and relative to the salvage industry in general.

Referring to Table 1 it can be seen that the firms studied represented a relatively wide range of sales levels. Total sales ran from a high of $26.8 million (Hayden) to a low of $3.2 million (Farber). While no industry data is available for total sales, it can be seen that the industry average for ferrous sales of scrap iron processor/brokers in 1969 was $2.03 million, lower than all the firms except Farber. The average sales value of ferrous materials handled by the firms studied was $8.05 million. For non-ferrous materials the average sales figure was $3.0 million. Although a comparative industry figure was not available for the non-ferrous group it is likely that it would again be lower than the average for the firms studied.

Figures 1 and 2 represent the distribution of sales level of firms in the ferrous and non-ferrous segments of the scrap processing industry, with the location of each firm analyzed as part of this study identified. It can be seen that the firms selected for study represented

Table 1

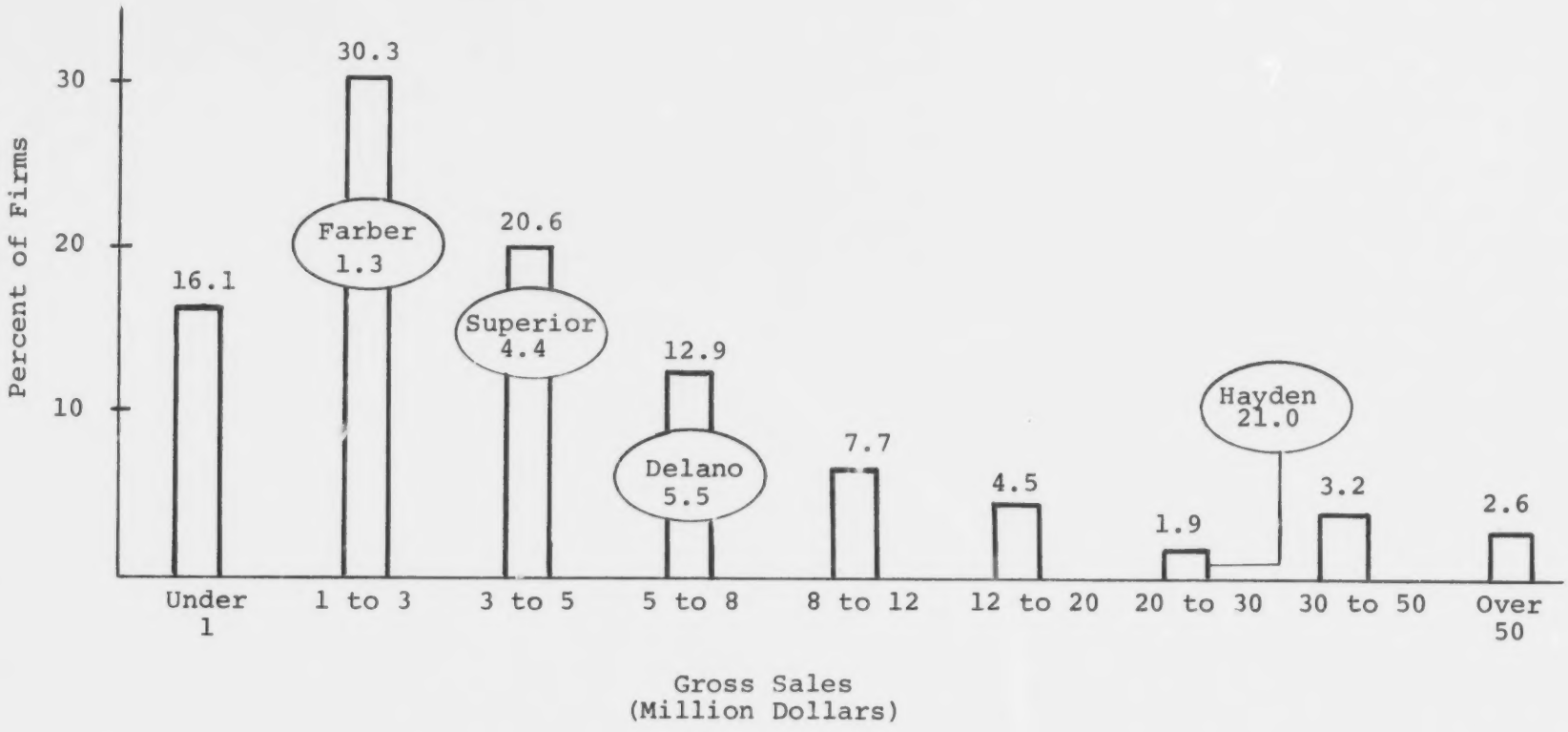
CHARACTERIZATION OF FIRMS IN THE INDUSTRY[1]

CHARACTERISTIC	F. HAYDEN & SONS, INC.	A. DELANO & SONS, INC.	SUPERIOR METALS CO.	L. FARBER INC.	AVERAGE OF FOUR FIRMS	INDUSTRY AVERAGE[2]
SALES REVENUE $ Millions . Ferrous	21.0	5.5	4.4	1.28	8.05	2.03
. Non ferrous	5.8	3.6	0.9	1.76	3.02	NA
. Other			0.9	0.16		NA
. Total	26.8	9.1	6.2	3.20	11.07	NA
SALES DISTRIBUTION % ($) . Ferrous	70	60	70	40	NA	NA
. Non Ferrous	30	40	15	55	NA	NA
SALES VOLUMES . Ferrous (Tons)	700,000	300,000	100,000	37,000	284,000	30,000 to 60,000[5]
. Non-Ferrous (Million Pounds)	46.0	8.4	1.5	5.9	15.5	NA
Net Sales Per Employee ($)	100,000	72,000	163,000	110,000	110,000	106,000[6]
Cost of Plant and Equipment ($ Millions)	5.2	2.3	0.69	0.42	2.15	1.8[3] 0.84[4]
Average Investment Per Employee ($)	19,200	18,600	17,900	14,400	17,500	19,200[3] 20,900[4]
NUMBER OF EMPLOYEES . Salaried	65	20	8	4	24	NA
. Hourly	205	106	30	25	92	NA
. Total	270	126	38	29	116	88[3] 44[4]
Location	South Atlantic	Middle Atlantic	East South Central	East North Central	NA	NA
	Medium Metropolitan	Large Metropolitan	Small City	Small Town		

Notes:
(1) 1971
(2) "Identification of Opportunities for Increased Recycling of Ferrous Waste," by Institute of Scrap Iron & Steel, Inc.
(3) Scrap Iron Processor and Broker
(4) Non Ferrous Dealer-Processor
(5) Resource Planning Associates estimate
(6) All Firms in BCL/NASMI Study

Figure 1

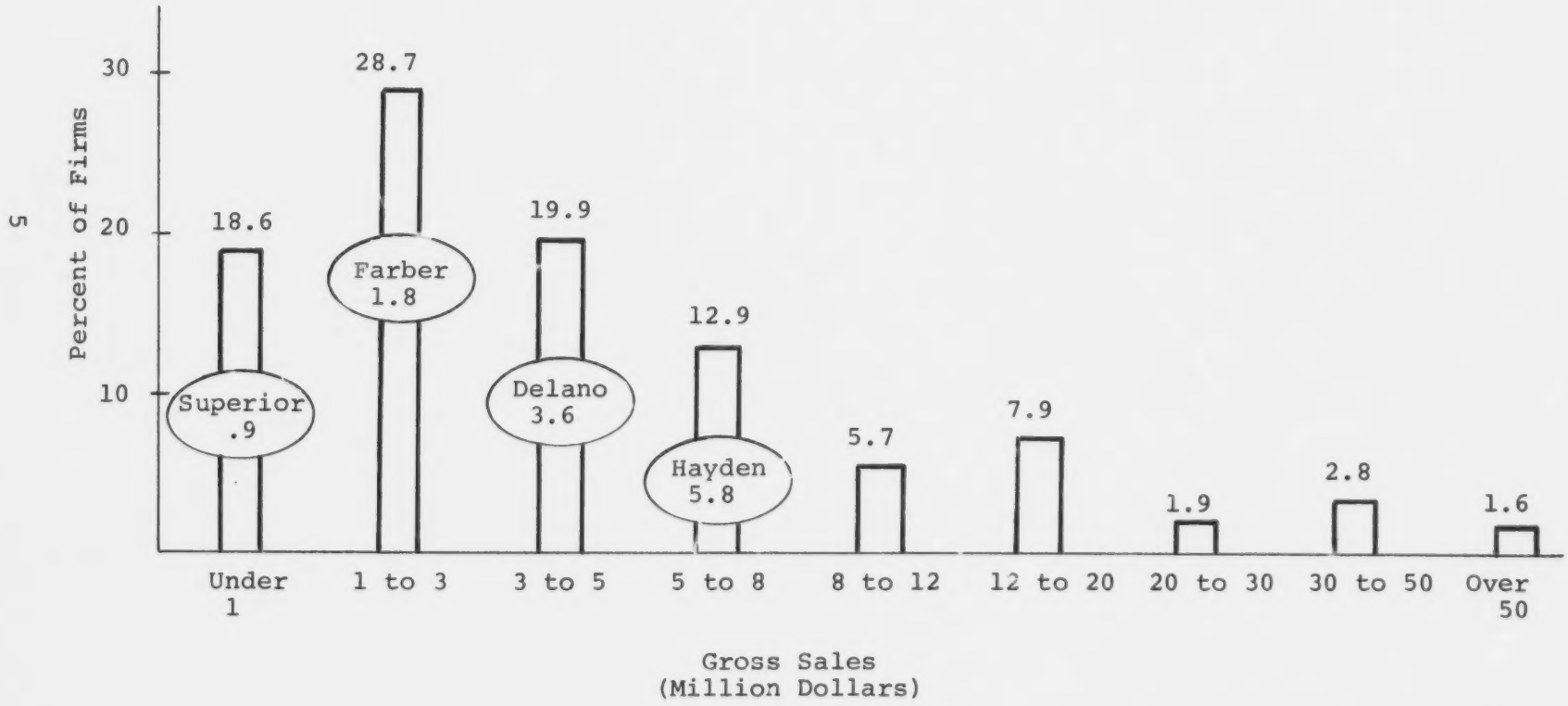
DISTRIBUTION OF SCRAP FIRMS:
SCRAP IRON PROCESSOR/BROKER



Source: Resource Planning Associates
"Identification of Opportunities for Increased Recycling of Ferrous Waste," by Institute of Scrap Iron and Steel, Inc.

Figure 2

DISTRIBUTION OF SCRAP FIRMS:
NON-FERROUS DEALER/PROCESSOR



Source: Resource Planning Associates
"Identification of Opportunities for Increased Recycling of Ferrous Waste," by Institute of Scrap Iron and Steel, Inc.

sales levels in each major segment. The sales distributions show that in all but one case (Farber) the ferrous sales exceed the non ferrous. Only one firm, Superior, has significant sales (15 percent) in another material area (paper).

The sales per employee figures indicate a similarity to the industry average of $106,000. The range is from $72,000 (Delano) to $163,000 (Superior) and the average for the four firms is $111,000, slightly higher than the industry. Delano's figure is low because of the arrangement with the Millvale Company where Delano does not take ownership of the materials it handles. If Delano did take ownership, the value of the materials would increase the value of Delano sales and thereby cause the sales per employee figure to move toward the average. Superior's ratio is high because it includes a large amount of brokerage, when materials are neither handled nor owned.

The value of plant and equipment shown is that taken from the firms'financial statements. These numbers represent the net book value of all land, buildings, vehicles, presses, cranes, conveyors, and other equipment. Since in many cases vehicles, switch engines and other equipment (even buildings) are purchased used, the actual capabilities of a firm cannot be judged solely on the basis of the value of plant and equipment. The table shows that the average investment in plant and equipment per employee is similar to that of the industry. The figure for Hayden, $19,200, is identical to the industry figure while the figure for Delano is somewhat lower. Delano's figure has recently increased significantly now that they have installed a large processing complex under contract to the Millvale Company - probably on the order of $25,000 to $30,000 per employee. Superior is the lowest because of the limited amount of processing performed and because the paper operation uses relatively low value equipment (shredder, cyclone cleaner and baler). Farber, similarly, has a below average figure because of the limited amount of processing performed.

The four firms were selected to give consideration to the influence of geography and regional characteristics. Variety in locations and local area population density was achieved. The influence of location and population density was significant in many ways. Hayden, located in Norfolk, was heavily into export, Delano in Pittsburgh, was integrated into the heavy manufacturing patterns there. Superior was

tied closely into the local situation but appeared confined with respect to growth due to the low population density in the region. Farber was even in a more restive situation in the small town where not only was growth impossible but there was also a danger of decline because of the reduction in ferrous purchases by local mills.

Operations and Management

General Management

Table 2 characterizes the managements of each firm more fully.

The management levels in the firms in all but the Hayden situation are similar. The owners, who in most cases are direct descendents of the founder, run the business with little or no professional help. They have one or more foremen reporting to them and these foremen usually have a relatively limited range of responsibilities. The owners direct virtually every facet of operations in detail. Only recently have the firms become aware of formal management and control techniques. This has occurred for two reasons. First, the new generation is more highly educated and aware of newer techniques and second, the recent economic downturn convinced management that better knowledge and control of costs were required for survival.

Operations

Table 3 summarizes the operating characteristics of each firm. Following is a discussion of these characteristics.

Processing

The operations of a "typical" scrap processing firm can be thought of as a number of individual processes, as opposed to a "process plant" with many interdependent in-line operations. While in some cases the equipment is expensive (automobile fragmentizer - $1,000,000), it is

Table 2

GENERAL MANAGEMENT CHARACTERISTICS

Characteristics	F. Hayden & Sons, Inc.	A. Delano & Sons, Inc.	Superior Metals Company	L. Farber Inc.
Ownership	Family and Minority Partner	Family	Family	Family
Principals	Two sons, father and partner	Two sons and father	Father and two sons	Son of founder
Ages	30,35,65,67	36,38,70	55,25,30	53
Education	Sons and father have graduate degrees. Partner has undergraduate degree	One son has undergraduate degree, one has high school diploma, Father grade school	Father and sons all have undergraduate degrees	Undergraduate degree
Long Range Planning	Not formalized but relatively extensive. Plans to out 1 to 3 years.	Little beyond current projects, 6 month horizon.	Little beyond a 6 month horizon	None in scrap area
Goals	Well defined. Extensive growth desired.	Not clearly defined	Not clearly defined	None in scrap area
Problems	Risk inherent in growth plans. Volitale nature of export markets	Need to assimilate new expansion and improve capacity utilization	Lack of growth potential in region	Maintaining the no-growth posture

Table 3

OPERATIONS CHARACTERISTICS

Characteristic		F. Hayden & Sons, Inc.	A. Delano & Sons, Inc.	Superior Metals Co.	L. Farber, Inc.
Processing:	Ferrous	Size reduction	Size reduction and cleaning	Size reduction	Size reduction
	Non-ferrous	Cleaning, size reduction and separating	Cleaning, separating, baling and smelting	Cleaning, separating, baling and smelting	Cleaning, separating, baling and smelting
	Heavy ferrous processing capability?	Yes, automobile fragmentizers and large shears	Yes, large fragmentizers, crushers and shears	No	No
Scheduling		Up to 3 months in advance.	Day to day. Informal by owners	Day to day. Informal by owners	Day to day. Informal by yard foreman
Inventory Control		Manual, to be put on EDP	Informal by owner. Related to buying and selling	Informal by owners	Informal by yard foreman
Quality Control		Routinely based on segregation of material and mechanical and manual techniques	Same	Same	Same but mainly manual
Costs: (%)	Cost of processing and handing / Sales	11.8	18.2	11.0	13.3
	Cost of raw materials / Sales	82.0	74.0	84.1	77.8

Characteristic		F. Hayden & Sons, Inc.	A. Delano & Sons, Inc.	Superior Metals Co.	L. Farber, Inc.
Plant and Equipment Cost ($ Million)		5.2	2.3	0.7	0.4
Logistics (In/Out)	Ferrous	Railroad/Ocean Truck /Freighter	Railroad/ Railroad	Truck/Truck	Truck/Truck
	Non-ferrous	Truck/Truck	Truck/Truck	Truck/Truck	Truck/Truck
Maintenance	Capabilities	Complete	Complete	Limited	Moderate
	No. of men	16	17	1	4
Employer:	Number of hourly	205	106	30	24
	Wages ($/hr)	4.00 to 5.00	3.00 to 4.00	2.75 minimum	2.55 to 4.65
	Union	Yes	Yes	No	Yes

Table 4

EQUIPMENT TO LABOR INTENSIVENESS

Company	SALES		OPERATIONS			INVESTMENT	
	Ferrous (%)	Non-Ferrous (%)	Value Added / Sales (%)	Depr & Rent / Value Added (%)	Labor Cost / Value Added (%)	Net Book Value / Total Assets (%)	Net Book Value / Sales/Year (%)
Hayden	90	10	18	12	35	20	7
Delano	60	40	26	14	28	47	16
Superior	61	39	31	11	31	28	12
Farber	32	68	34	14	33	17	11
Average	N/A	N/A	27	13	32	28	12
All Manufacturing Establishments			48	N/A	31	N/A	N/A
Chemicals*			56	N/A	15	N/A	N/A
Primary Metals*			41	N/A	38	N/A	N/A
Leather*			53	N/A	43	N/A	N/A

Note: Sales = Processed Metals Sales Only (excludes brokerage, other businesses)

*Data from 1969 Manufacturers Summary, 1971 Statistical Abstract of the United States

not complex and generally no more than two pieces (i.e., a shear and a baler) are required to process completely a given material. Major equipment items are of two types - processing and materials handling.

Ferrous processing equipment includes large fragmentizers and large shears at the Hayden and Delano firms. The other firms have small shears and Farber has a small turnings crusher. Non-ferrous processing equipment includes conveyors for manually separating materials, smaller balers, small alligator shears and smelting furnaces.

Table 4 shows the degree of equipment to labor intensiveness of the four firms studied. Data is compared to "all U.S. manufacturing establishments" and other selected industries. The average figures are useful in reaching general conclusions about the scrap firms studied and the relationship of these firms to other industries. "Value added" is the difference between the sales revenues from processed materials and costs to the firm of the raw un-processed scrap. It includes processing costs, both direct and indirect, administrative and selling costs, "other" costs (such as interest expense), and profit. As the term implies, it measures the value added by the firm in transforming the raw scrap into usable secondary materials. Value added, as a percentage of sales, is much less for the scrap firms studied than for other manufacturing groups (27% vs. 48%). These scrap firms are perhaps best characterized as "raw material-intensive", and the costs associated with raw materials are central to the success of the firms.

For the four firms studied, the average ratio of labor costs to value added is approximately 32%, the minimum being 28% and the maximum 35%. This compares with 31% for all manufacturing establishments, leading to the conclusion that these firms are neither more nor less labor intensive than the "average U.S. manufacturing firms".

The other "operations" ratio, depreciation plus rent to value added, is a relative measure of yearly plant-equipment expenses, and is a useful way of isolating the capital intensiveness of the firms involved. On the average, this equipment-related expense amounted to 13% of value added, compared to 32% for labor expenses. This indicates that labor accounts for a greater share of costs than does equipment.

The "investment" ratios in Table 4 provide interesting comparisons among firms. For example, Farber with 40% ferrous sales and 55% non-ferrous sales, has a ratio of net book value to total assets of 17%. Delano, with 60% ferrous sales and 40% non-ferrous sales, has a 47% ratio of net book value to total assets. This sharp divergence between the two firms can be explained by two factors: Delano is expanding his business very rapidly and has invested a large sum of money in specialized ferrous processing equipment, which at this time has significant unused capacity. Farber, however, had taken a very conservative stand with regard to expansion and has very little capital tied up in plans and equipment. The other factor which explains the difference in the operations and investment ratios for the two firms is differences in materials processed. Farber processes much more non-ferrous material than Delano. Relative to total sales and non-ferrous processing is characteristically much less capital intensive than ferrous processing and because of its higher value, non-ferrous can often be sorted and processed manually.

Scheduling

Due to the uncertainties of scrap supply and demand, particularly among the smaller firms, scheduling on a long-term basis is difficult and rarely practiced. A major exception is the large exporting firm which contracts for overseas delivery of large quantities of scrap three months or so in advance. In this case a major scheduling effort is necessary to collect and process the scrap in an orderly fashion to insure that it is ready for delivery on the designated date. In most situations, scheduling is handled informally and on a day-to-day basis.

The superintendent or owner/manager usually has a good "feel" for inventory levels, demand and probable material supply and uses this "feel" in his day-to-day scheduling.

Inventory Control

Like process scheduling, inventory control is practiced informally in most of the firms studied. To a

certain extent, and this varies widely among firms, control is limited by the processor's ability to control the scrap supply--since demand is usually beyond his control. The processor generally has more leverage with his sources of supply and reduces raw material inputs by slowing deliveries of the transient component of his suppliers.

Quality Control

Quality control is an important function in the scrap processing industry, both for ferrous and non-ferrous materials. Scrap users must produce secondary materials that meet definite standards for such things as amounts of unwanted metals, alloys or non-metallic items. If a load of scrap is delivered to a mill and is not found to meet specifications, it will be rejected and returned to the scrap processor at his expense. Accordingly, quality control is performed routinely by the processor, and the employees responsible for this function are skilled and often paid a premium. Techniques are based mainly on keeping materials segregated from the point of pick-up or by separating materials manually (on a "hand-picking" conveyor) using skilled workmen or by a technical method such as magnetic separation of ferrous materials from non-ferrous. A number of chemical or electro-chemical tests can also be used to identify materials quickly and inexpensively.

Maintenance

Processing and materials handling equipment maintenance is important to all of the firms, and the two largest have developed significant internal maintenance capacity. Three of the four firms have four or more maintenance men, some of whom are well-versed in a number of areas, enabling them to work on a press and a tractor-trailer with equal facility. The two largest firms have major pieces of equipment on which they perform extensive maintenance. For example, the automobile fragmentizers need a full-time maintenance crew which spends 6-10 man-hours maintaining the machine for every 8 hours of operation. Ths smaller hydraulic presses and shears which work under severe operating conditions, require that maintenance groups be ready at any time to perform major repairs. Most equipment is used well beyond its standard depreciation period and for this reason maintenance of older equipment is especially important.

Labor

In the past, labor has not played as important a role in this industry as in others. The ability to buy low, sell high was generally more important than how efficient or effective labor was. Because of the minor role that labor played in the profitability of the firm, management gave it little consideration. Working conditions were very unsavory and turnover, at least among younger employees, was very high.

As the trend toward more material processing continues the role of labor is becoming more important. This is being reflected in better benefit programs and better working conditions.

The largest firm, F. Hayden and Sons, recently completed a move to a new facility, which includes a modern lunch room and sanitary facilities. This move and the company reorganization helped to improve employee attitudes and performance. The men now feel they are more a part of the organization and that they are more aware of what is expected of them and what their rewards for good performance are. This firm has also opened up the internal promotion process, with job openings posted throughout the plant and all eligible workers invited to apply. Seniority is still a factor in promotion, but morale has been boosted because the whole process is now more closely related to ability than it had been previously.

Marketing

Scrap firm marketing operations include buying, selling and brokerage. Each of the firms performs all of the major functions, but in varying degrees. Table 5 gives the major marketing variables of each firm in the study.

There are several common elements which characterize the industry in general. First, all marketing activities are usually handled by the owner who usually operates in a highly personal and trusting manner. Typically, they do all the actual daily buying, selling and brokerage. Most of this is by telephone with suppliers and users. The highly dynamic character of prices, supply and demand make written contracting difficult; verbal agreements followed up by purchase orders and invoices are the primary

Table 5

MARKETING CHARACTERISTICS

Characteristic	F. Hayden & Sons, Inc.	A. Delano & Sons, Inc.	Superior Metals Company	L. Farber Inc.
Suppliers	Over 400	80 to 100	190 to 220	100
Customers	Several large plus 100 others	One large plus 50 others	One large plus 20 to 30 others	Several large plus 30 to 40 others
Markets	Export and Metropolitan Heavy Industries	Metropolitan, Heavy Industries	Small city, regional industries	Small town, regional industries
Dominant in Local Area	Yes	Yes	Yes	Yes
Special Marketing Situation	Export Ferrous	Large volume of ferrous contract processing for Millvale	Close relationship with one user	Most sales to several large customers
Brokerage	Some Ferrous	Small Amount	Large volume of ferrous	Little
Buying and Selling Performed By	Partner, Vice President, and field buyers	Owners	Owners	General Foreman

means of doing business. A firm is "as good as its word".

Service is another key element of the "marketing mix". These firms are successful because they make every effort to meet the needs of both suppliers and users. For suppliers, the scrap firms take particular care to pay the going price and to service each account very carefully. Pickup, for instance, is done on time and if special pickups are required a truck is expedited to the user's site (sometimes at 5 A.M.).

Service to the scrap user is based on the mix of low price, reliable deliveries and meeting quality standards. The firms in the study all were very involved in responding quickly to the needs of their scrap users. They would personally handle any problems that might develop with deliveries or specifications.

The firms act as a funnel collecting from many small sources, combining and selling material to a relatively small number of users. For example, the Superior Metals Company brokers almost exclusively to one mill but uses scrap from as many as 150 sources. Hayden, the largest firm in the study, purchases scrap from some 400 accounts and sells to about 100. The scrap suppliers may range in size from a one-man auto wrecker to a huge manufacturing plant.

The firms studied feel that scrap prices are generally set by the end users, such as a steel mill or a foundry. The price which the scrap firm pays his supplier is the price which he estimates the end user will pay less the firm's "spread", (transportation costs, processing and handling costs, general overhead and profit). The "spread" is set by the owner. In brokerage, the spread (or "brokerage fee") might be $1 per ton for ferrous scrap and as high as $20 per ton for copper scrap. For a processing firm, the spread might range from $10 per ton for ferrous scrap to $60 or more per ton for copper scrap.

Transportation costs play a significant role in limiting the geographic radius of a firm's marketing region particularly for ferrous scrap. The firms feel that rail freight rates favor raw materials (e.g., iron ore) over secondary materials. To support this contention, Hayden, which exports ferrous scrap, claims that ocean shipping to Europe or Japan is $2 to $8 per ton cheaper than rail shipments to steel mills 400 miles away.

Finance

Introduction

Detailed financial statements for the firms in this study are presented with the cases. The purpose of this section is to characterize and analyze the more important financial characteristics of these firms, primarily by evaluating key financial ratios. Table 6 gives the main financial characteristics of the firms and Table 7 the financial analysis data. Each of the four firms is closely held, with all or most of the stock retained by the founder or his family. The primary usefulness of the financial statements is in the internal control and certain outside dealings, primarily with banks. In general the firms enjoy harmonious relationships with local bankers and have little trouble obtaining credit within reasonable limitations.

Financial Characteristics

As previously indicated, scrap firms are primarily merchandisers with purchased material costs representing 81% of sales. Furthermore, direct variable costs are 91% of sales with labor at only 6%. These factors suggest several important considerations for viewing the financial strategy of scrap firms.

First the high variable cost component means that the firms have little operating leverage and cannot easily obtain economies of scale. Second, low labor input implies that only minor savings can be obtained by adding capital equipment. The combination of low capital equipment requirements and high variable costs provide very low financial barriers to entry for competition. Because of competitive threats and low fixed assets, banks tend to view these scrap firms as relatively high risks. Also, since raw purchases are 81% of sales, the critical elements in a successful scrap firm are buying and selling, not processing. Because buying and selling is accomplished on a personal basis by the owner/operator, the real value of the scrap firm is in his skills.

Table 6

FINANCIAL CHARACTERISTICS

Characteristics	F. Hayden & Sons, Inc.	A. Delano & Sons, Inc.	Superior Metals Company	L. Farber Inc.
Banking Relationships	Excellent with 1 large bank	Excellent with 2 banks	Excellent with 1 bank	Excellent with 1 bank
Bank Lines of Credit	Yes $1,000,000	Yes $500,000	Yes $300,000	Yes $250,000
Equipment Financing	Internal funds, some debt	Debt, mortgage and internal funds	Debt and internal funds	Long-term debt and internal funds
Accounting: General Accounting	Internal Staff	One Man	Two People	One Man
Financial Statements	Yes, Quarterly	Yes, Yearly	Yes, Yearly	Yes, Yearly
Audited	Partially	No	No	No
Control: Department Budgets	Yes	No	No	No
Inventory Control	Yes, EDP	No	No	No
Processing Costs	Yes	No	No	Yes
Profits Distribution (After Tax)	To Retain Earnings	To Retain Earnings	To Retain Earnings	To Retain Earnings

Table 7

FINANCIAL ANALYSIS DATA

Item	F. Hayden & Sons, Inc.	A. Delano & Sons, Inc.	Superior Metals Company	L. Farber Inc.	Average of four Firms	Industry Average
Cost of materials as a percent of sales	82.0	74.0	84.3	77.8	81.0	NA
Direct labor costs as a percent of sales	6.1	7.2	4.6	6.2	6.0	NA
Other variable costs as a percent of sales[1]	2.4	6.0	4.5	2.7	3.9	NA
Total variable cost as a percent of sales	90.5	87.2	93.4	86.7	90.9	NA
Profits after taxes as a percent of sales	1.1	1.4	1.3	0.8	1.15	2.3
Profit after taxes as a return on owners equity	6.3	18.4	1.1	9.3	8.8	8.1
Cash flow as a return on owners equity[2]	17.4	31.3[4]	22.1	23.6	23.6	NA
Debt as a percent of total capitalization	8.7	NA	31.0	37.2	25.6	22
Accounts receivable turnover, days	7	43	33	50	33[4]	32
Accounts payable turnover, days	35	61	17	50	41	NA
Inventory turnover, number of times per year[5]	9.9	23.3	19.6	7.5	17[4]	13[6]
Ratio of current assets to current liabilities	1.49	0.91	2.70	1.22	1.58	2.45
Estimated growth rates	6.0	13.8	12.3	7.5	11.2[4]	NA

Notes: [1]Freight, plant supplies, maintenance, utilities
[2]Profits aftertax plus depreciation
[3]Based on total capitalization
[4]Does not include Hayden
[5]Cost of goods sold method
[6]Sales method

Financial Analysis

Three areas of importance in the financial strategies of the four firms, profitability, capitalization and working capital management are discussed below.

Profitability

Reported profits on sales average 1.1%, well below the industry average. However, the profit on equity was 8.8% compared to an industry average of 8.1%. This higher than industry return is partially caused by the higher use of debt financing of these four firms as after tax debt costs are less than 4%. On a cash flow basis (profits after tax plus depreciation) these four firms average a relatively good 23.6% return.

Capitalization

All of the four firms investigated are closely held family corporations, characteristic of the scrap industry. The amount of debt varies significantly among firms, but there is a trend toward increased use of long term debt. Two of the firms have debts in excess of 30% of capitalization which is more than the industry average of 22%. Hayden, with a long term debt ratio of 8.7% has a greater additional debt capacity than the other firms. These other firms probably could not carry additional loans without an increase in equity. Due to the low total fixed assets suitable as collateral and the risks implicit in this industry, it is doubtful that banks would extend much in excess of 30 percent of capitalization. Additional short term money appears to be available to all firms to carry cyclical swings or emergencies.

Working Capital Management

The ratios employed under this heading indicate the amount of funds which must be used to support operations and the ability of management to utilize current liabilities as sources of funds. As such these ratios are an indication of the liquidity of each of the firms.

Accounts receivable and payable are two important

areas in the scrap firms' working capital strategy. Hayden has a 7 day receivable period and a 35 day payable period, consequently providing a $1.6 million financing source from payables. The average of the other three firms is 41 days in receivables and 43 days in payables. Hayden's very low number of days in receivables is probably caused by their large volume of export sales which would typically be recognized as a sale upon dockside delivery and payment received immediately. However, most of these funds are absorbed by Hayden's high inventory levels prior to export. Hayden has an inventory turn ratio of 9.9, whereas the average of the three other firms is 17 turns per year. The high inventory turnover is further indication that these salvage firms are primarily merchandisers (i.e., buyers and sellers).

The current ratio (current assets to current liabilities) for the salvage industry is 2.45. The four firms studied vary significantly from this average. Delano has only a 0.91 current ratio because of recent capital expenditures. Hayden has only a 1.49 ratio because of their low receivables. Farber has a 1.22 ratio and Superior a 2.70. These ratios indicate the relative liquidity of the firms. Farber appears to be in a tight situation. However, due to the high level of reasonably marketable inventories the high current ratio is not so critical as it might otherwise appear.

The Capital Investment Decision

Capital budgeting decisions are based on a number of considerations, including return on investment. For smaller firms, especially, these decisions often seem to be defensive rather than offensive. That is, the competitive situation is such that the firm may lose market share if modernization is not carried out. Thus, there is some question whether the owner could maintain a viable business if he decided against the investment, and in this sense the investment decision hangs on necessity rather than choice. Another important reason is that with only a 6% of labor to sales ratio, capital equipment investment is not critical for reducing labor costs.

Whatever the reason for considering the investment, whether defensive or offensive, the predominant decision factor is capacity utilization rather than a return on investment figure. Figure 3 shows a typical breakeven

Figure 3

A. DELANO & SONS, INC.

BREAKEVEN ANALYSIS

Item	Average Price Per Ton	Capacity Ton/Hour	Net Tons Per Year	Annual Revenue
Weldments	$7.50	50	87,500	$ $656,250
Forgings	6.00	140	245,000	1,470,000
Total Capacity			332,500	$2,126,250
Average Revenue/Ton				$6.40

Variable Costs Per Ton		Annual Fixed Costs of Operation	
Labor	$1.10	Depreciation on Equip.	$200,000
Maintenance	1.38	Interest on Equipment Loan	105,000
Power & Misc.	.55		
Total	$3.03		$305,000

Contribution to Fixed Costs Equals ($6.40-$3.03) Per Ton

Breakeven Volume (BEV)

($6.40-$3.03)x BEV = $305,000
BEV = 90,000 Tons Annually

Delano performed a breakeven analysis similar to the above and determined that this volume was only 27 percent of capacity or 90,500 tons. Since they had a contract with Millvale for quantities in excess of this amount, they brought the equipment anticipating higher returns if volume increased. A more sophisticated analysis could be performed to calculate the return on investment (ROI) which Delano could expect at higher volumes. Since Delano anticipated operating at 80 percent of capacity in a short time, a calculation of their ROI at this volume would be as follows:

1. 80 percent of capacity = 266,000 tons
2. Contributions to fixed costs = $6.40-$3.03 = $3.37/Ton
3. Fixed costs = $305,000
4. Therefore Profit = $3.37 x 266,000 tons - $305,000 = $591,420
5. At a 48 percent marginal tax rate, profit after tax = $307,538
6. Assuming that non-cash expenses (depreciation) are used to amortize the $3,000,000 equipment mortgage, the accounting return on investment at 80 percent capacity is:

$$\frac{\$307,538}{\$3,000,000} = 10 \text{ percent}$$

calculation for A. Delano & Sons, Inc. The breakeven volume is calculated, and the owner's decision is based primarily on his expected volume relative to breakeven. If the owner feels that he can handle sufficiently more than breakeven volume to make a "good" profit, he will buy the equipment.

Growth

On average, it requires $.15 of capitalization to finance $1 of sales. Using the average after tax profit of 1.1 percent of sales and debt as 30 percent of capitalization, the maximum growth rate for these three firms without outside equity financing is 11 percent per year. Hayden's growth, limited by their low debt strategy, is only 6 percent (8 percent with a 30 percent debt limit).

As previously explained additional debt is probably not readily available to these firms and therefore growth would have to be financed through either increased profit margins or reinvestment by the owners. It is doubtful that any of these firms could obtain public equity (e.g., "Go Public"), except for Hayden, for reasons described under the capitalization section.

However, other sources of funds from sale and lease back type agreements or closer control of working capital could provide funds required for growth in excess of 11 percent. It is not believed that any of the firms studied, except Hayden, were aware of the various financial lease possibilities.

Accounting and Control

Control of the scrap firms, particularly the smaller ones, is not emphasized but is sufficient to meet management needs. Yearly financial statements, except for F. Hayden and Sons, are unaudited, reflecting the closely held nature of many firms in the industry. A trend toward more comprehensive cost control was observed in all of the firms, although the smaller firms have not developed systems that are truly cost effective. The main problem with these attempts is that the firms could not or would not make the effort needed to understand how to

use the systems. The nature of the plant operations, for example, is that a number of different types of materials (e.g., non-ferrous metals) may be processed through a machine or a series of machines in a short time frame. Efficient utilization of labor often demands that people be shifted among processes on rather short notice. These changing conditions make it very difficult to accurately assess the profitability of one particular process, such as baling aluminum, because the costs associated with operation are difficult to assess and keep records of.

F. Hayden and Sons has been developing a computer oriented accounting and control system. A small business computer system has been installed, and serves as the data processing and display device for the entire firm. The emphasis of this system has been to obtain and display meaningful data for the use of Vice Presidents and division heads. Major operating units are profit centers, and performance measurement demands a good control system.

SECTION III - CASE STUDIES

F. HAYDEN & SONS, INC.

A CASE STUDY

F. HAYDEN AND SONS, INC.

History

Frank Hayden, with his two sons, Edward and Lionel, started his business in Norfolk, Virginia, in 1935, with $120,000 of borrowed funds. In 1938, he and Lionel died unexpectedly, leaving Edward as the sole owner/operator. Thomas Cartwright, an original partner with a 20 percent interest in the firm, was secretary-treasurer. Now in charge of ferrous sales and purchasing, he has remained with the firm over the years and has held several other important executive positions.

Edward Hayden, now 66, has always run his company in an individualistic and dynamic manner. With his formal education--including bachelor and law degrees from major eastern universities--combined with his natural talents,he has built his firm into one of the 10 largest scrap wholesalers in the nation. He has also been involved in many civic and professional activities, among them, the Institute of Scrap Iron and Steel.

From 1935 to 1941, the company was small and specialized mainly in collecting scrap to sell to a larger salvage firm. It was successful and was able to fully repay the $120,000 loan within two years. This early success was due not only to the hard work and diligence of the family operators but also to their growing experience.

Since the early 1940's, successful growth of the company has taken place at a steady rate. According to Edward this has been due to dedication, hard work, and competence in this business rather than to luck or fortuitous events.

Financing the company has always been largely through retained earnings, with some depreciation cash flow which has become more significant in recent years. Bank financing was not available until the late 1950's when Hayden established a relationship with the National Bank of Norfolk.

Current Overview

In the latest fiscal year, 1972, F. Hayden and Sons was one of the largest U.S. exporters of ferrous scrap, having shipped some 720,000 gross tons to European and Asian

countries. The majority of this ferrous scrap was Number One and Number Two steel. In addition, the firm processed some 46 million pounds of nonferrous and alloy scrap, including almost every type and grade known. It employs 205 hourly and 65 salaried men and women and has an annual payroll of over $2.0 million. Its investment in plant and equipment totals over $10 million.

In the last four years, F. Hayden and Sons has been placing significant emphasis on increasing scrap processing, improving efficiency, and strengthening overall operations by acquiring more facilities on the East Coast. The purpose of this strategy is to obtain better leverage on the market and, ultimately, to expand.

The acquisition of a new 50-acre site is one of the major accomplishments of this period. This new site, with rail sidings near a major interstate highway, was purchased in order to move the whole Hayden operation from a congested industrial/residential area near downtown Norfolk to a distant but more suitable area about five miles from the city. Completed in the spring of 1972, the construction of office, warehouse, maintenance, and yard facilities represents as much as a five-fold increase in space for some operations.

The old facilities consist of a series of buildings, yards, warehouses, and loading docks, which were built or acquired in an inexpensive manner and which by themselves are not of great value. The land, however, is in an area designated for future redevelopment and has a value several times its original acquisition cost. Since all active operations have been relocated to the new facilities, this old site has been abandoned.

Another major accomplishment of this expansion phase is the installation of 3,000 horsepower automobile fragmentizer with a capacity of 600 tons per day. In addition to the auto fragmentizer, a second processing machine has been purchased to process brass and bronze alloys available in large quantities in the marine regions around Norfolk. This machine breaks up, cleans, and packages up to 1,000 pounds per hour.

In conjunction with these moves to improve processing and general operating efficiency, Hayden and Sons acquired a scrap yard in Baltimore and spent 2 to 3 years building up its operation to the point where it currently handles 300,000 to 400,000 tons of ferrous scrap a year. Scrap from this facility is shipped to foreign ports. In 1968, the firm also bought two salvage companies handling only ferrous materials. These purchases made yards possible in Charleston, South Carolina and Savannah, Georgia.

Hayden's expansion has given the company a base for its current plans which center around a change in leadership for the firm. (See the Organization Chart of Figure 1.) Edward Hayden's son, Nelson, is in his thirties and has ten years experience in operating his own business in another field. Nelson has worked out an agreement with his father and the corporation to assume the direction of general operations with his brother, Gene, supervising day-to-day operations. Edward remains a close advisor and takes part in all major decisions. Tom Cartwright continues in his present position.

It is Nelson's job to capitalize on the new plant, new processing equipment, and new subsidiaries and to consolidate these into an efficient and profitable operation. He is also taking a number of steps to increase internal control and improve internal administration and management, and has begun to look into both vertical and horizontal diversification. He is sensitive to employee needs and the requirements for effective management, since he has the experience of running his own business, with over $2 million in annual sales. He has a bachelors and a masters degree in business administration from leading Eastern schools.

The economic recession has been a major problem for ferrous and nonferrous scrap dealers throughout the United States, and in fiscal year 1971, this was compounded for F. Hayden and Sons by a Eat and Gulf Coast longshoremen strike of long duration. In a typical year, Hayden will ship between 600,000 to 800,000 tons of ferrous scrap to foreign ports. In fiscal year 1971, ferrous shipments hovered at the low end of the range. Because of previous purchase agreements and Hayden's desire to maintain goodwill with suppliers of ferrous scrap, the company built inventory while waiting out the dock strike and, to some degree, the recession. This has been a successful policy only because of the strong financial position of the company, and during the summer of 1972, the inventory was worked down to a point where operations were almost normal. The situation in nonferrous has been consistently depressed for the past 3 to 4 years and currently shows no signs of improving.

Facilities

Site

The new site (see Figure 2) contains about 50 acres in an irregular plot situated near an interstate highway and abutting a railline of the Norfolk railroad and the deep sea channel, Hampton Roads. Additional land is available for purchase at the western end of the tract, and Hayden is actively considering the acquisition of approximately 50 acres for future development.

Figure 1

F. HAYDEN AND SONS, INC.

ORGANIZATION CHART

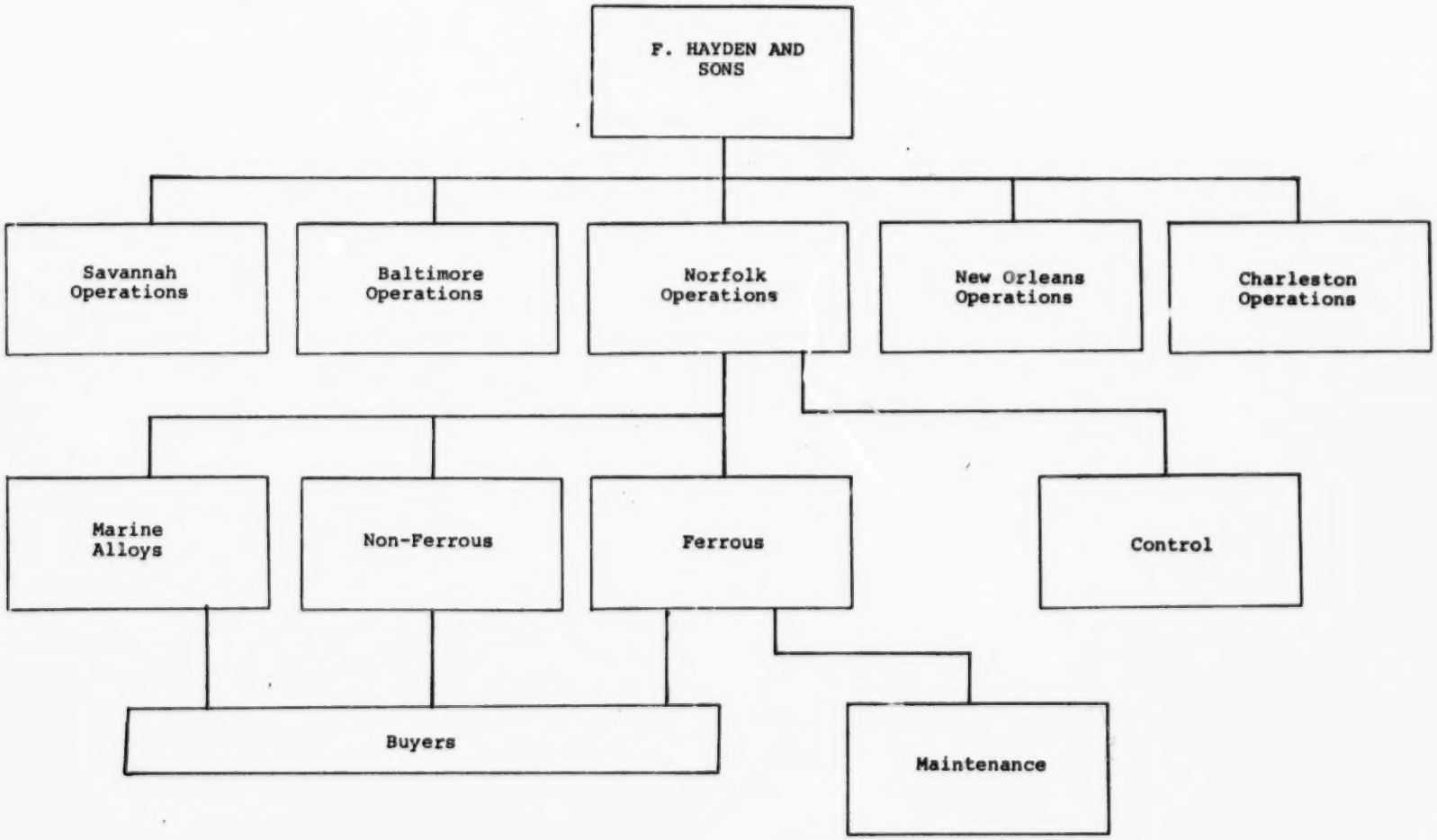
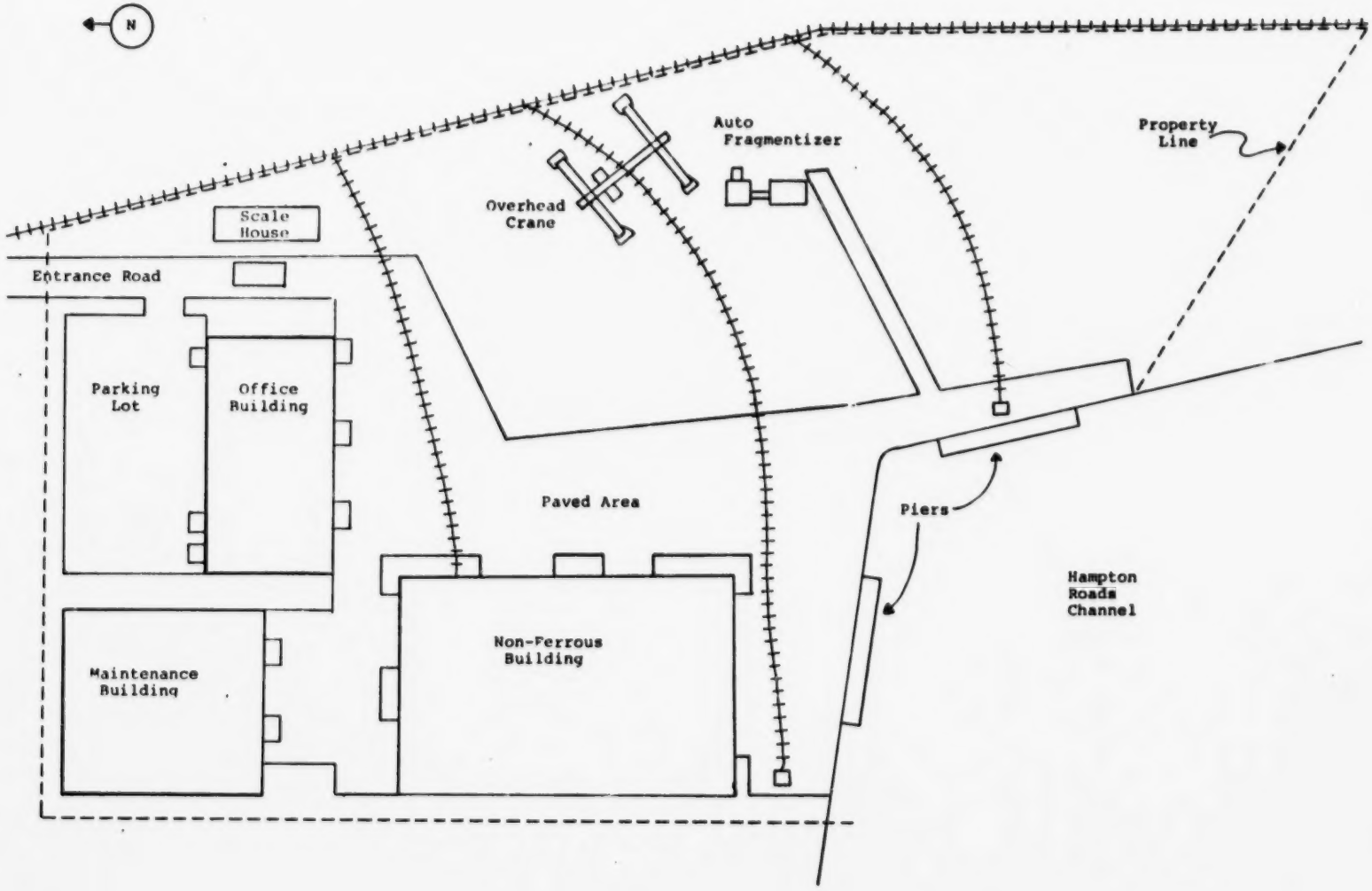


Figure 2

F. HAYDEN AND SONS, INC.

PLAN OF FACILITIES

NORFOLK



The enclosed space totals approximately 65,000 square feet of which 52,000 is for the nonferrous warehouse and processing building, 8,000 for offices, and about 5,000 for a separate maintenance building. The rest of the land area is used for ferrous processing and storage and for access roads and parking areas. The open space between processing and storage locations makes good use of the land available for efficient transport and handling of the ferrous scrap.

The internal layout of the nonferrous building is sufficient for handling large amounts of diverse scrap expeditiously. The building includes 15 truck docks, 8 with adjustable ramps, 2 rail car docks, 4 balers, 10 scales, 4 cleaning stations, and an overhead tracked crane. (See Table 1.) This building puts all of Hayden's relatively labor intensive nonferrous operation in an enclosed heated area.

The office building contains all executive and operating offices on two floors. It also includes a 400 foot square laboratory, which is used for day-to-day testing of material composition and for research and development.

Placed in a convenient but out-of-the-way location west of the office building, the equipment maintenance building has been designed to handle all the largest trucks and heavy equipment that Hayden and Sons uses. The working space is open, and provision has been made for storage of spare parts in a specially set-aside stock room.

Hayden has some $5.8 million invested in land and buildings. The buildings are new or in excellent condition. They have large open areas for ferrous processing and material handling functions. The sites are well located, being near railroads and highways and usually with ocean shipping docks in good harbors.

Equipment

Although Hayden owns much equipment requiring a large fixed capital investment, it is not yet extensively committed to specialized processing except for the auto fragmentizers (see Figure 3) and the brass and bronze processing system (see Figure 4). The bulk of the processing equipment (see Table 1) is made up of general equipment such as handpicking conveyors, shears, presses, and cutting forks. The rest of the equipment used by the firm is essentially for material handling and transport. For example, the firm owns 36 cranes, 37 tractors, and 76 trailers.

TABLE 1

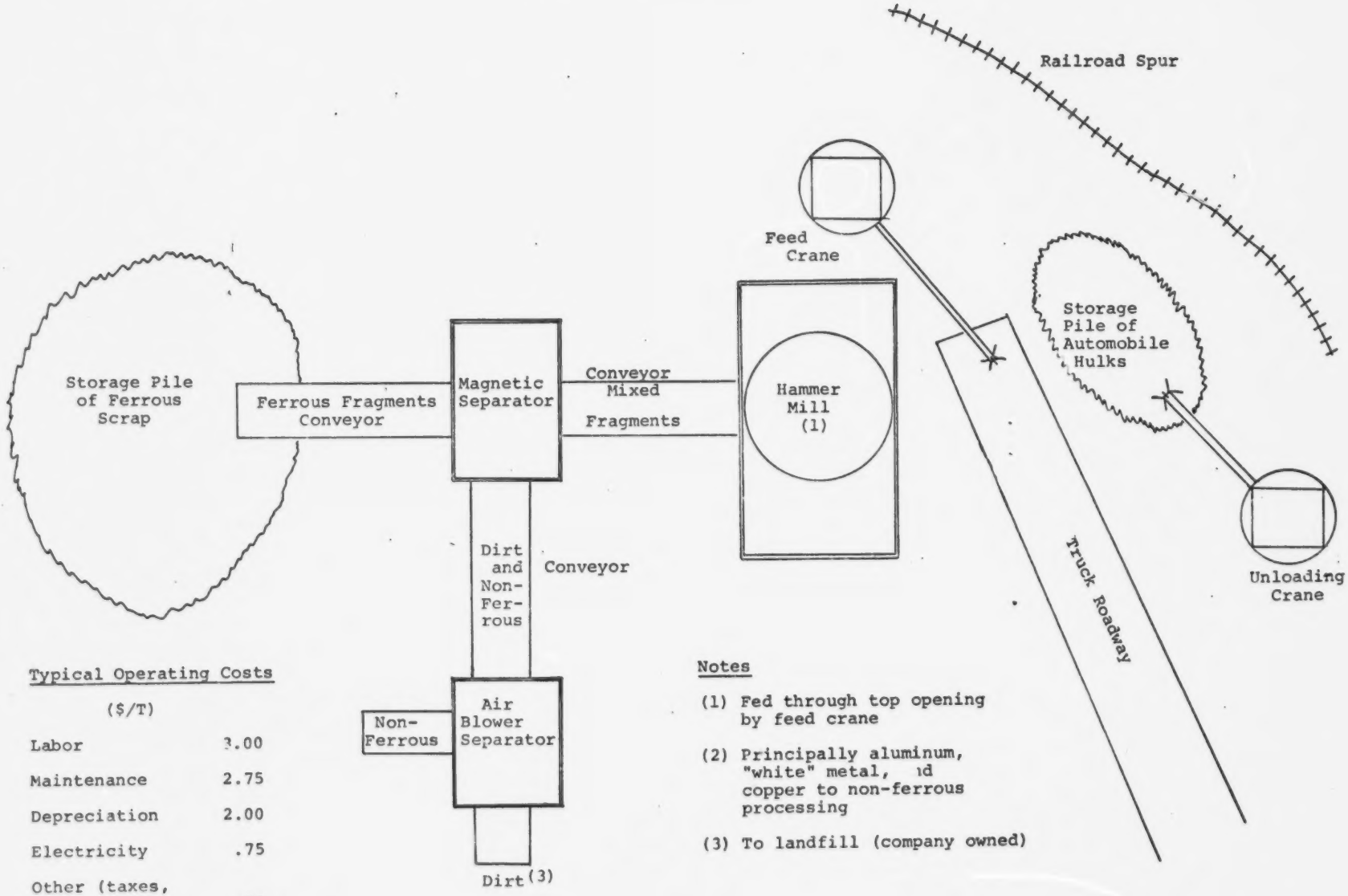
F. HAYDEN AND SONS, INC.

EQUIPMENT LIST

Description	Quantity	Replacement Costs ($1000) Average	Total
Processing Equipment:			
Presses	4	140	560
Presses, Hydraulic	2	300	600
Presses, Small	3	12	36
Shears, Large	3	225	675
Shears, Medium	2	125	250
Fragmentizer	1	1,000	1,000
Turnings Crusher	1	50	50
Miscellaneous Equipment	-	800	800
SUBTOTAL			3,971
Cranes:			
Crawler	20	80	1,600
Overhead (Small)	4	80	330
Mobile	6	70	420
Gantry	3	250	750
Railroad	3	450	1,350
Overhead (Large)	1	400	400
SUBTOTAL			4,850
Trucks, etc:			
Trucks	5	20	100
Tractors	27	20	540
Trailers (Old)	48	2	96
Trailers (New)	28	5	140
Load Lugger	6	35	210
Fork Lift	8	14	112
Front Loaders	2	35	70
SUBTOTAL			1,268
Railroad Equipment			
Locomotive	1	100	100
Gondola Cars	100	4	400
Car Mover	1	30	30
SUBTOTAL			530
GRAND TOTAL			10,619

Figure 3

F. HAYDEN AND SONS, INC.



Typical Operating Costs

	($/T)
Labor	3.00
Maintenance	2.75
Depreciation	2.00
Electricity	.75
Other (taxes, ins., etc.)	.50
	9.00

Notes

(1) Fed through top opening by feed crane

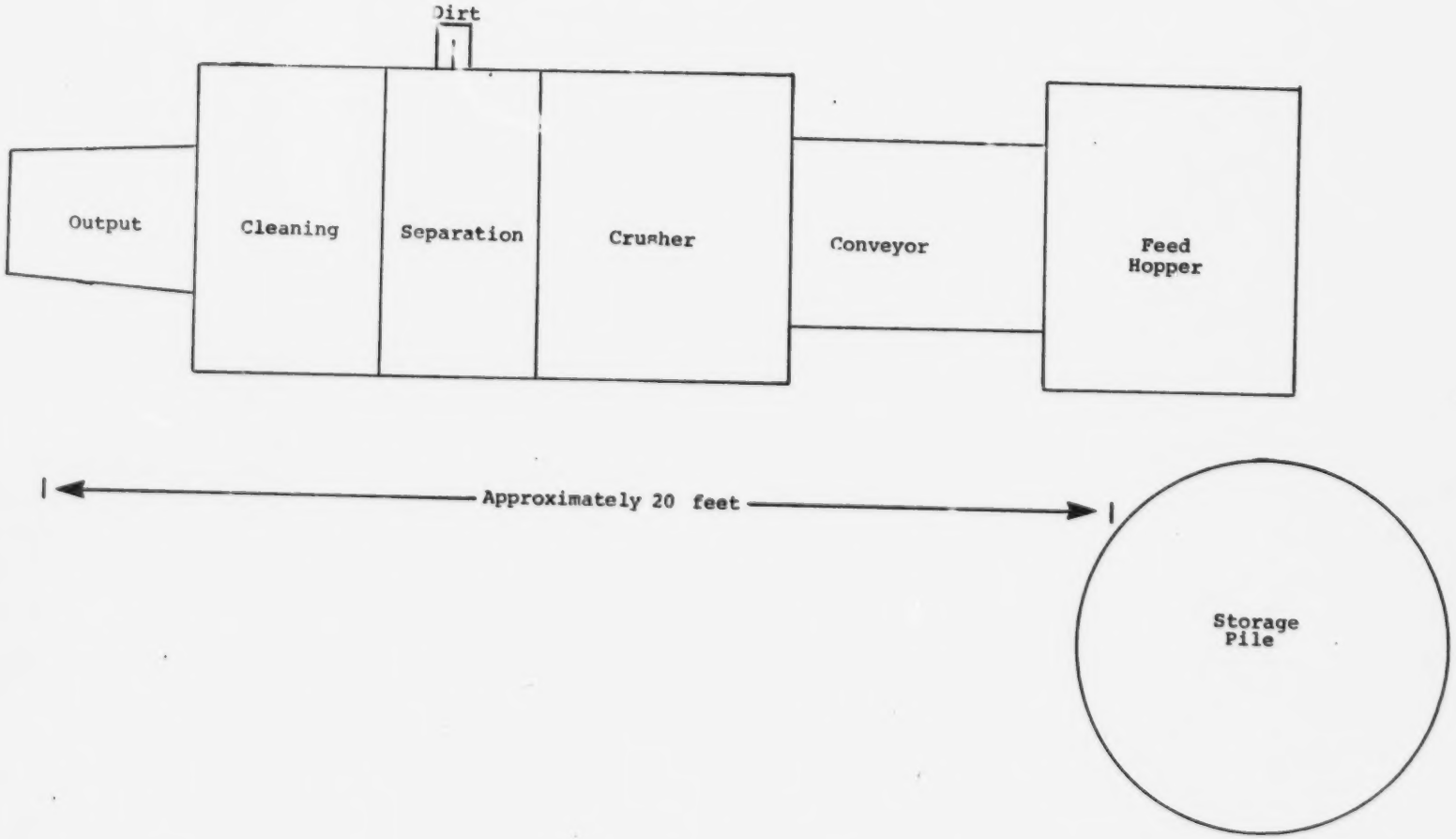
(2) Principally aluminum, "white" metal, and copper to non-ferrous processing

(3) To landfill (company owned)

Figure 4

F. HAYDEN AND SONS, INC.

BRASS AND BRONZE PROCESSING



An example of the general type of equipment which Hayden uses is a large outdoor travelling crane with a 20-ton capacity, a span of 100 feet, and a travel of some 250 feet (see Figure 2). This crane is used for a wide variety of nonferrous dismantling and handling operations, the salvage of railroad locomotives and freight and passenger cars. It is also used for general loading and unloading.

The company has some $10 million invested in equipment and is about to expand this by $1.2 million with the addition of a second automobile fragmentizer. With a few exceptions, Hayden maintains a policy of owning all of its equipment.

Maintenance

The firm has no standard overall maintenance policy, nor does it have an individual policy for each equipment group. Most of the equipment maintenance is done in its own shops. Exceptions to this rule are complex electrical work or specialized work such as the installation of glass (windshields, etc.). The firm has a full-time crew to handle all auto fragmentizer maintenance, which can run 6 to 10 man-hours for every 8 hours of operation, and all maintenance of trucks, forklifts, cranes, etc. In addition, general mechanical skills are available to handle just about any maintenance of balers, shears, cranes, conveyors, and other heavy equipment.

Among the maintenance work performed are engine overhaul; engine tuneup; hydraulic system troubleshooting; transmission and gear-drive repair; fragmentizer-hammer repair; and, periodically for prevention, lubrication, adjustments, and winterization.

The staff of fourteen mechanics at the main site is directed by two full-time foremen, one for plant maintenance and one for truck and crane maintenance. The maintenance department has a parts department with a comprehensive inventory of spare parts for vehicles and equipment repairs. There is a full time salaried parts and work scheduler. Messengers are avilable for obtaining parts from local dealers.

The maintenance work is done as a service for the other departments, and the time and parts costs of each job--about $12.00 per hour--are charged to the particular department involved. The objective for the maintenance department is to show a "profit" or, at least, break even when costs are measured against charges to other departments.

Processing Operations

Hayden and Sons deals with a large number of sources, approximately 400 to 500 regular accounts. It sells to a large but smaller number of users. On a recent day, the firm recorded over 50 individual scrap weighings of less than one ton with some 25 weighings of over 5 tons.

About 70 percent of ferrous scrap is received by truck, and about 30 percent by rail. Almost all of it is shipped via ocean freighter. The ferrous scrap that comes in by truck is mainly from wreckers and large dealers. That received by railroad is from wreckers or direct contracts with manufacturers and railroads. In 1971 Hayden handled some 700,000 tons of processed ferrous scrap which was exported in some 50 ships. About 95 percent of nonferrous scrap is received at Hayden by truck and shipped out by truck to domestic mills.

Ferrous materials are generally received directly into yards for processing or else they are stored until a sufficient amount has accumulated for shipment. Auto hulks which have had seats and tires removed are put into the pile of hulks waiting to be fragmentized (see Figure 3).

The range of costs for ferrous operations varies from as little as $2.50 per ton for no processing to about $5.00 a ton for shearing, to $10.00 per tons for fragmentizing auto hulks.

Because of their value, nonferrous materials are kept segregated and receive more attention during processing than ferrous materials. Nonferrous are stored indoors. The material usually is received at the dock in barrels or other containers which can be handled by a forklift truck. The individual barrels are weighed on the scales adjacent to the receiving dock, and the weight is recorded on the container with the markings indicating the alloy or grade of the scrap. Weight tickets are sent to the order processing department.

Depending on the many grades and alloys available and cleanliness, the foreman decides what, if any, processing is required. The processing ranges from a hand sorting and picking operation on a conveyor to a more complex operation such as the brass and bronze processing machine (see Figure 4).

The range of costs for nonferrous operations varies from as little as 5 cents per pound for no processing to

about 40 cents per pound for brass and bronze processing.

Individual vice-presidents in charge of each department--ferrous, nonferrous and alloys--are responsible for maintaining the flow of scrap into and out of the company. They are constantly aware of anticipated quantities scheduled for processing, the level of inventory of each grade, the condition of the market, and the availability of ships. By and large, they are controllers of scrap operations--buying, processing and selling.

Quality control is maintained in three ways. First, materials delivered to Hayden and Sons from the different sources are often received in segregated form; this is the usual procedure for nonferrous and alloy scrap and is often the case for ferrous scrap, particularly the better grades. Second, a variety of tests may be performed, from the simple pocket magnet type to the complex chemical or spectrochemical. Third, manual or machine separation operations are closely controlled to assure effective separation.

Buying/Sales

The ferrous department is headed by Thomas Cartwright, who is in charge of all domestic and foreign buying and selling operations for ferrous scrap. He is assisted by Carl Johnson, who works out of an office in New Orleans. Johnson is primarily concerned with foreign markets, while Cartwright is more involved with domestic operations. They use the services of buyers in the buying department (see Figure 1). Both of these men have been with Hayden and Sons for many years.

Richard Thornton is the Vice President of the nonferrous department and is personally responsible for selling operations. Nonferrous buying is handled in the buyers department which reports to the pruchasing department administratively but receives direction on prices and quantity from Thornton. Thornton is also responsible for all nonferrous processing operations, inventory considerations, quality control, and general departmental affairs. The marine alloy area is headed by John Franklin, who has responsibilities which parallel Richard Thornton's.

Thornton has been with the company for 6 years and Franklin more than 20 years. These two Vice Presidencies were created in the past two years as part of the firm's total reorganization.

The effective buying and selling of ferrous scrap is highly dependent on the skills of Cartwright and Johnson. They are very close both to domestic supply conditions--prices and availability of scrap--and to the markets for the scrap--prices and open purchase contracts. They work within a market structure which calls for, say, buying at $30 per ton and trying to sell at $36 to $36.50 with an overall margin of 20 to 30 percent. This margin must cover operating and processing expenses which average about $5 per ton. Their profit potential then is in the range of about $0.75 to $1.50 per ton. Cartwright's and Johnson's effectiveness in achieving their high profit levels within these narrow limits is the factor which assures the firm's success and, at the same time, makes entry or expansion by other firms into foreign ferrous scrap sales difficult if not impossible.

The United States is a "surplus" nation with respect to the generation and use of ferrous scrap, while Japan, Italy, Spain, and others are "deficit" nations. Cognizant of this fact, Hayden has expanded its foreign scrap selling operations to the point where foreign ferrous sales comprises 70 percent of the company's total sales and 100 percent of its ferrous sales. In 1971 Hayden exported 700,000 tons.

An additional reason for the growth of foreign ferrous sales operations is the strategic location of the firm on the Eastern seaboard. Here Hayden has access to direct relatively low cost ocean shipment of scrap to mills in Italy and Spain, trading companies in Japan, and scrap dealers in Germany. Costs of ocean shipping to Europe or Japan compared to rail shipping to domestic mills in Alabama, Maryland, Pennsylvania, Ohio, or Indiana, are from $2 to $8 per ton less expensive. In most cases, this amount means the difference between profit and loss.

The foreign mills' ability and readiness to use lower grades of steel effectively in their steel-making processes also contribute to the increase in the firm's exports. Foreign mills consider secondary grades of ferrous scrap as good as primary ones. Number One steel is shipped in larger amounts than any other type.

Three main steps are involved in the actual buying and selling operations. First, foreign sales orders are lined up for delivery at some future date by Cartwright and Johnson. Second, ships are contracted for two to three months before delivery is due at the foreign mill. Third, purchases of domestic ferrous scrap are made in advance and received to build inventory for a particular order at the specified shipping point, one of the firm's dockside yards. By operating this way, it is possible for Cartwright and Johnson to be fairly accurate and consistent in the way orders are put together, the rate at which inventories are built and shipped, and the way that cash flow is controlled.

Nonferrous and alloy buying and selling operations vary from the ferrous operations in several significant ways. First, they are wholly domestic and quite heavily concentrated in two or three states. Second, because the materials--copper, brass, bronze, lead, tin, aluminum--are so much more valuable, (10 to 20 times the value of ferrous scrap) the physical volumes are less, and a good deal of hand processing can be used when required. Third, almost all of the nonferrous and alloy scrap is received and shipped from the same location by truck.

Another difference between nonferrous and marine alloy buying and ferrous buying is the use of a group of buyers with assigned territories and accounts. These nonferrous buyers are directed by Franklin and Thornton as to the buying price and quantities to be purchased. Franklin and Thornton also have direct responsibility for selling the materials handled in each of their respective departments. Much like Cartwright and Johnson, they stay close to day-to-day department operations and market conditions.

Basically, Franklin and Thornton match the purchased quantities and price levels bidded or quoted to existing inventories, material contracted for but not delivered, and anticipated sales. This is called a "position report." Thus, they are able to effectively move the material while maintaining reasonably effective inventory levels and minimizing the tie-up of working capital.

The general decline in business activity in 1970-1971 has made it difficult to maintain reasonably low inventory positions. The business decline caused many users of scrap to greatly curtail purchases while suppliers continued to generate fair volumes. Hayden and Sons felt obligated to accept delivery of nonferrous and alloy scrap from established suppliers even though it knew it could not sell in the near term. Essentially, the firm accepted delivery, paid for the

scrap, and bore the inventory-holding costs while waiting for the markets to turn around. Only recently, in the Spring and Summer of 1972, have the nonferrous and alloy scrap inventories begun to approach normal levels.

This practice of buying scrap when markets are limited indicates the relationship Hayden and Sons maintains with its scrap suppliers; the firm does everything it can to keep suppliers happy. It uses the "field" buyers to make extensive and repeated courtesy calls on suppliers, sometimes taking the key men out to lunch or dinner or entertaining them at country clubs or sporting events.

Administration and Management

With the main reorganization activities, a great deal of change has taken place in Hayden's administration and management in the past year. Basically, the company has been departmentalized and, in a sense, decentralized. More decision-making responsibllity has been put in the hands of subordinate managers. Certain realignments have been put into effect, and newly-established departments are now profit centers with their own internal operating statements and Vice Presidents. These profit center departments include the following: ferrous, nonferrous, marine alloys, and buying. Departments which are not profit centers include control and maintenance.

Employee relations are now good after the transition period which also included some temporary layoffs due to the recession and business downturn. The move to the new location has helped to boost employee morale, since the facilities are laid out aesthetically and functionally, have good lunch room and sanitary areas and are easy to keep clean.

The relocation, the reorganization of the departments and the delineation of much more specific "chains-of-command" have given a sense of direction to all employees and a greater awareness of what is expected of them and what Hayden and Sons is trying to accomplish. It is much easier for the employees to feel they are part of the organization and of a team within the organization with specific responsibilities and goals.

The use of internal promotions has been well developed, and jobs are "posted" when openings occur. Many employees have been promoted by this means. Wages and benefits at

Hayden and Sons are better than average. The wage rate is some $.30 to $.70 per hour higher than prevailing rates for similar work in the area. The basic hourly wages range from $4.05 per hour for yard men to $5.02 per hour for crane operators. Time-and-a-half is paid for overtime work.

In addition, a complete benefits program has been established and includes a group insurance plan fully paid by Hayden and Sons. This plan includes: life insurance ($10,000 for a man who earns between $7,500 and $10,000 per year); a weekly income maintenance program in case of disability; major medical coverage of hospital and surgical costs; and a retirement plan which pays out to a 65 year old retiree with 20 years service about $200 per month. The vacation plan includes 2 weeks paid vacation immediately after joining the company, 3 weeks after 5 years, and 4 weeks after 10 years service. Regular paid holidays are given to all employees. Each employee'sbenefits costs the company an additional 30 to 42 percent over the employees basic wage.

Union relations are satisfactory. One two-week strike a few years ago was not based on any fundamental difference between the union and the company, and all of the issues of that strike were resolved. The employees are represented by two unions, the Teamsters and the Operating Engineers. Both have executed comprehensive contracts with Hayden and Sons.

Control

The recent reorganization had two major objectives: to strengthen financial control at all levels and introduce a concept of performance measurement. While these goals have been nearly achieved, there are still several major tasks either to be implemented or completed. The main thrust of the control activity has been to accumulate and report operating data so that managers and others would be able to make judgements about their departments. Data accumulation and new manual systems have been worked out, and a recently installed small business computer system is being brought on line to serve as the data processing system for the control systems. The computer is currently processing accounts payable.

The financial control is the responsibility of the Controllers Department. This department handles several control functions: accounts receivable, inventory status, department operating statements, general accounting functions for several subsidiary corporations, and corporation financial statements. At the present time, payroll and accounts receivable are on EDP systems at an outside contracted service bureau. This department is also responsible for executive areas of labor relations and negotiations, employee benefits programs, and insurance policies and programs. The Controllers Department is headed by a new man brought into the firm by Nelson in 1971.

With the addition of the computer, three new control systems will be gradually implemented, including a fairly comprehensive specially programmed system for purchase and sales analysis for all three scrap areas. The system will generate timely position reports. The objective of this system is to optimize the performance of both the buying and selling operations (that is, to make them highly cost effective).

A second system to perform inventory costing and evaluation so that steps can be taken to minimize inventory levels and the attendant carrying costs will be added to the computer. In addition, this system will be designed to aid the company officers who do the buying and selling to establish the maximum possible "spread" between purchase price and selling price.

Third, the computer will be used to prepare monthly, quarterly, and year-to-date comparisons between department budgets and actual operating results. The budgets will be developed with the aid of historical information concerning each revenue, expense, and other account, and the department directors will be responsible for holding their operations within the general budgetary figures established before the beginning of the fiscal year. This system was scheduled for implementation in the fiscal year beginning January, 1973.

As was indicated in the section on buying and selling, the area of direct inventory control and the attendant problems of cost effective handling of working capital needs remain largely dependent on the buying and selling operations of the ferrous, the nonferrous, and the alloy groups. Their day-to-day decisions are responsible for significant inventory and cash movement, requiring close, routine internal working contact with money managers in the Controllers Department.

Capital budgeting is done on an ad hoc basis; however, for a spending decision on large equipment or facilities additions, a formal justification memorandum is prepared by the requesting department.

Finance

F. Hayden and Sons is one of the largest salvage firms in the United States, with sales of over $26 million in fiscal year 1971. To operate at this rate under the widely varying economic and marketing conditions of the salvage business requires significant financial management skills. Hayden has built these resources and skills over the past 30 years by carefully developing and maintaining good relationships with local financial interests and with customers and suppliers. Hayden has experienced periods of both high and low profitability and cash generation. At times Hayden and Sons lent considerable amounts to other firms, friends and relatives. Currently, some $2 million has been lent to partially owned (50 percent) subsidiaries. At the same time, the amount of the firm's short- and long-term borrowings is also about $2 million (see financial statements Tables 2, 3, 4 and 5).

With export sales of approximately $25 to $30 million a year, Hayden is a significant contributor to an improved U.S. balance of payments condition. Because of this large volume of foreign exporting, the firm must handle currency transactions involving exchange rates with several foreign countries. These activities are carried out with thoroughness and efficiency, and only a few problems are encountered.

Current asset management has been discussed in the section on buying and selling, where it is indicated that the men responsible for these activities have a large impact on cash movement and inventory levels. It can be seen from the consolidated income statement that average inventory levels were about 10 percent of the total inventory purchase cost for the year. This is a relatively low inventory level in a time of poor business conditions and represents an excellent inventory turnover rate of approximately one turnover for each 36 days. This rate indicates that the buying and selling operations are being handled effectively and, at the same time, highlights the rate of inventory turnover as an important factor in being successful.

Table 2

F. HAYDEN AND SONS, INC.

CONSOLIDATED BALANCE SHEET DECEMBER 31

	1971	%	1970	%
ASSETS				
Current Assets:				
Cash	$ 809,506	8.4	$1,026,258	11.3
Accounts Receivable-Trade (Less Doubtful Accounts)	483,816	5.0	675,454	7.4
Notes Receivable	1,805,408	18.6	2,432,439	26.7
Inventory	2,326,145	24.0	2,139,179	23.5
Other	432,594	4.5	252,418	2.8
Total Current Assets	$5,857,116	60.5	$6,525,748	71.6
Fixed Assets:				
Autos and Trucks	$ 741,416	7.7	$ 753,473	8.3
Machinery and Equipment	3,573,370	36.9	3,513,540	38.5
Buildings, etc.	514,885	5.3	489,378	5.4
Leasehold Improvements				
Land	285,778	2.9	287,778	3.2
Other	65,470	0.7	60,944	0.7
Total	$5,180,919	53.5	5,105,114	56.0
Less: Accumulated Depreciation	3,233,166	33.4	2,830,410	31.0
Total Fixed Assets	$1,947,753	20.1	$2,274,703	24.9
Other Non-Current Assets:	1,878,959	19.4	317,605	3.5
Total Assets	$9,683,828	100.0	$9,118,058	100.0
LIABILITIES AND STOCKHOLDERS' EQUITY				
Current Liabilities:				
Accounts Payable	$2,103,726	27.5	$2,345,050	25.7
Notes Payable	1,342,989	13.9	1,060,000	11.6
Other	495,951	5.1	680,917	7.5
Total Current Liabilities	$3,942,666	40.7	$4,085,967	44.8
Deferred Income Taxes:	398,517	4.1	398,517	4.4
Long-Term Debt:				
Long-Term Notes	$ 19,429	0.2	$	
Other	446,494	4.6	75,896	0.8
Total Long-Term Debt	$ 465,922	4.8	75,896	0.8
Stockholders' Equity:				
Common Stock	$ 480,000	5.0	$ 480,000	5.3
Paid-In Surplus	2,240		2,240	
Retained Earnings	4,394,482	45.4	4,075,438	44.7
Total Stockholders' Equity	$4,876,722	50.4	$4,557,678	50.0
Total Liabilities and Stockholders' Equity	$9,683,828	100.0	$9,118,058	100.0

Table 3

F. HAYDEN AND SONS, INC.

CONSOLIDATED INCOME STATEMENT FOR THE YEAR ENDING DECEMBER 31

	1971	%	1970	%
Sales-Net	$26,769,091	99.4	$27,384,978	98.7
Other Sales	168,838	0.6	372,570	1.3
Total Sales	$26,937,929	100.0	$27,757,548	100.0
Cost of Goods Sold				
Inventory-Beginning	$ 2,139,179	7.9	$ 2,297,917	8.3
Purchases	22,254,535	82.6	22,823,806	82.2
Less Inventory Ending	2,326,145	8.6	2,139,179	7.7
Net Material Cost	$22,067,569	82.0	$22,982,544	82.8
Plus Cost of Processing and Handling	3,183,834	11.8	3,067,466	11.1
Total Cost of Goods Sold	$25,251,403	93.7	$26,050,010	93.8
Gross Profit:	$ 1,686,526	6.3	$ 1,707,538	6.2
Operating Expenses (Net)	992,842	3.7	980,019	3.5
Net Operating Income	$ 693,684	2.6	$ 727,519	2.6
Other Income	228,837	0.8	221,231	0.8
Less: Other Expenses	289,746	1.1	250,721	0.9
Net "Other	(60,909)	0.2	(29,490)	0.1
Net Profit Before Taxes	632,775	2.3	698,029	2.5
Income Taxes:	$ 327,550	1.2	$ 320,564	1.2
Net Income	$ 305,225	1.1	$ 377,465	1.4

TABLE 4

F. HAYDEN AND SONS, INC.

COST OF PROCESSING
AND HANDLING

	1971	%	1970	%
Salaries, Wages and Benefits	$1,642,398	51.6	$1,580,186	51.5
Freight			43,867	1.4
Plant, Supplies and Expenses	96,794	3.0	94,156	3.1
Maintenance	467,276	14.7	526,770	17.2
Depreciation	537,613	16.9	398,877	13.0
Rent	18,718	0.6	7,727	0.3
Vehicle Registrations and Insurance	166,335	5.2	184,288	6.0
Utilities	69,334	2.2	61,564	2.0
Taxes	175,256	5.5	147,930	4.8
Other	10,110	0.3	22,101	0.7
TOTAL	$3,183,834	100.0	$3,067,466	100.0

TABLE 5

F. HAYDEN AND SONS, INC.

STATEMENT OF SOURCES AND USES OF FUNDS
FOR THE YEAR ENDING DECEMBER 31, 1970

Sources of Funds

	$	%
Cash	$216,752	8.8
Accounts Receivable	191,873	7.7
Notes Receivable (Current)	627,031	26.4
Fixed Assets Sold	14,057	0.6
Accumulated Depreciation	402,756	16.4
Notes Payable (Current)	282,989	11.4
Long Term Notes	19,428	0.7
Other Long Term Debt	370,598	15.1
Retained Earnings	319,045	19.9
TOTAL SOURCES	$2,444,529	100.0

Uses of Funds

Inventory	186,966	7.6
Other Current Assets	180,057	7.4
Fixed Assets Purchased	89,862	3.7
Other Non-Current Assets	1,561,354	63.9
Accounts Payable	241,324	9.8
Other Current Liabilities	184,966	7.6
TOTAL USES	$2,444,529	100.0

Since F. Hayden and Sons is a privately held firm there is little motivation to maximize reported profits.* In 1970 and 1971 net profits before taxes were 2.5 and 2.3 percent of sales respectively. With the net cost of purchased materials between 82 and 83 percent some 17 to 18 percent were left to cover processing and handling, operating expenses and profit. Within this 17 to 18 percent figure the company was able to help support the efforts of establishment of the new facilities, the development of new operating systems and strengthening its marketing effort. These efforts, in part funded as a normal expense of the business, serve as a foundation for and impetus to future growth. A continual source of growth potential therefore exists in their use of funds generated as a normal expense of doing business.

Additional sources of funds for stimulating the growth of the company are illustrated in Table 5, Sources and Uses of Funds. In this table it can be seen that funds were generated in two main areas: borrowings, in the form of notes payable, long term notes and other long term debt which totalled 27.6 percent and notes receivable (loans called in) which supplied 25.6 percent. Additional funds came from the monies allocated for accumulated depreciation, 16.5 percent, and those derived from retained earnings, 13.0 percent.

The main use of funds was to help finance the growth of a partially owned subsidiary through a loan of $1.5 million. This use accounted for 63.9 percent of the funds. Other uses included nominal, 3.7 to 7.6 percent, increases in other asset categories, decrease in accounts payable of 9.8 percent and decrease of other current liabilities of 7.6 percent.

Problems

Hayden and Sons faces several problems as it moves ahead in the 1970's. Some of these problems are unique to the firm, others, to the type of salvage company it is, and still others, more or less common to all salvage companies.

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*Stockholder owned firm must respond to the need for maximizing the market value of the outstanding publically owned stock and normally the market value reflects what the public believes the long term earnings potential of the firm is.

The main problem unique to Hayden and Sons is the tremendous amount of reorganization undertaken at the same time as its relocation to new and enlarged facilities. Throughout these changes, Hayden has attempted to maintain the good sales growth it has experienced during the past few years. The problems of the reorganization have been handled well, with excellent employee participation at all levels. Several actions were taken to ensure this participation--group discussion, weekly meetings, and frank disclosure of what the company was doing and what financial results were being produced by each department and group.

When people were shifted, demoted, or fired, the actions were clearly defined in advance when possible, and only those people who were noticeably ineffective were released. Long-service employees who were not qualified for their reorganized positions were moved to less demanding situations with tact and good will.

The reorganization continues,but is mainly concerned now with other tasks: procedures, systems, and control. The challenge remaining is to make the whole organization--both people and systems--work as a unified whole with the kind of efficiency that will ensure the firm's ability to grow into a multiple-location, diversified salvage dealer with a significantly larger sales volume than is presently enjoyed.

The threat of longshoremen strikes halting export sales is a problem common to Hayden's type of salvage firm. Recent coast strikes severely restricted ferrous operations by delaying shipments and, in some cases, causing losses of thousands of tons of ferrous export shipments. This problem is impossible to control, since strikes happen periodically and are completely independent of the salvage industry. Moving scrap to other ports is usually either uneconomical because of high transportation costs or is futile because whole regions or coasts are affected by the strikes. When strikes occur, Hayden and Sons tries to minimize inventory build-up until it is evident that the strike is going to end, and then, sales orders are activated.

Some problems affecting almost all salvage firms include first, the general business recession. For Hayden as discussed previously, this caused inventory build-up mainly in nonferrous and marine alloy scrap, because the firm felt committed to accept deliveries from regular accounts.

A second point of concern for all salvage firms is image improvement. With its new facility, an attractive, well-designed, well-maintained, more suitably located operation, Hayden has shown itself a leader in local industry. The facility has been set up with a large warehouse screening the main ferrous scrap yard from view from adjacent streets. The grounds are well landscaped, and large portions of the scrap yard are paved.

A third important problem is the high costs associated with domestic scrap transport. For example, it is generally cheaper for Hayden to ship to Japan by ocean freight than to Pennsylvania, Ohio, and Illinois by rail. This problem then restricts salvage firms to local and regional operations, limits their size, and forces those along seaboards to attempt to export scrap to foreign consumers as a means of furthering their business. No solution for this problem seems available.

A fourth problem is the small profit margins currently found in nonferrous and marine alloy operations. This is caused not only by the business recession but also because of the pricing policy of secondary metal users. The user pay the suppliers the same price for equal materials, independent of the size of their purchase--a 2000 pound load of brass receives the same per pound price as a 30,000 pound load. This has caused a general downward pressure on prices "so that no one is making any money" in the nonferrous and marine alloys area.

Hayden has not had significant problems with air or water effluent discharge regulations, since little burning or incinerating is performed. Much of the scrap received by Hayden has already been processed, and much of the rest requires only fragmentizing or separating.

Plans

Long-range planning at Hayden and Sons is not formalized, but the open integrative policy of the owners and top managers is such that considerations of future plans and objectives are carried out almost continuously. Much work and discussion goes into planning for new systems and procedures, new ways of processing materials, more efficient handling and processing techniques, etc.

Because Hayden is a large, growing, and aggressive salvage firm, its long-range objectives have been well defined, and action to steer the company in the planned direction is continuously underway. This action has been intensified in the past two years by the move to new facilities, the reorganization and the acquisition of other salvage firms.

The basic long-range objective of Hayden and Sons is to continue to consolidate its position in the East in the ferrous area and to develop processing capabilities in other areas, such as, paper and glass. Other major objectives include achieving a high level of internal operating control through decentralized but well-administered operations; and continuing growth both by acquisitions of other salvage firms and by expanding its processing capabilities.

Hayden and Sons has demonstrated that it has the financial and management resources to carry out its objectives. The move, reorganization, surviving the business downturn, new acquisitions, and continued growth have tested these capabilities thoroughly. It is likely that the firm's resources will be sufficient for achieving a good part, if not all, of their current objectives.

A. DELANO & SONS, INC.

A CASE STUDY

A. DELANO & SONS, INC.

History

Anthony Delano immigrated to the United States from Italy in 1906. For several years thereafter, he worked as a Jack-of-all-trades, drifting from state to state until finally settling in Cincinnati, Ohio. There he sold produce from a pushcart. This turned out to be an auspicious venture, for not long afterward Delano engaged in a bit of potato speculation which ultimately yielded him a windfall of $1,000. It seemed a fortune to Delano--at last he had acquired the passage money for his wife, son, August (Gus), and daughter, Maria to leave the home country and come to America.

The Delanos were fairly successful produce sellers in Cincinnati. As a sideline for extra money, they also started a scrap business for furs, hides, iron, newspapers, and rags. In 1919, they decided to move to Pittsburgh, Pennsylvania, which they saw as holding greater economic opportunity as well as a larger community of Italian-Americans.

During the 1920's, the Delano scrap business grew slowly but surely as the entire family involved itself in its operation. In the mid-1930's, the family formed a subsidiary to buy used truck and heavy equipment parts and to sell them either for reuse after first reconditioning them or as scrap metal. (After World War II, this subsidiary was bought by a relative and enlarged to include a machine shop and repair operation.) In this period, too, both ferrous and nonferrous operations were expanded to handle materials used by local foundries.

Anthony Delano died in 1932, and Gus and his mother assumed management of the firm. A nephew, Leo Fantasia, who joined the firm in 1928, became more active in the business and continued to do so until his retirement in 1945. Gus Delano had two sons, David and Robert. In 1962 David, then 27, joined the firm after working in another business for two years. Robert, 26, joined in 1963 following graduation from Tulane University.

The years since 1958 have marked the most active growth for A. Delano & Sons. Before this period, the firm's sales in any given year never exceeded $1.4 million. By 1964, sales had more than tripled to approximately $4.9 million; by 1971, the figure nearly doubled to $9.1 million.

About 50 percent of Delano's sales volume can be attributed to one major development--the Millvale Corporation account. Since the late 1930's, Delano and Millvale, a large manufacturer of heavy equipment, have worked in close relationship. Until the middle of the sixties Delano purchased, processed and resold Millvale scrap (forgings, weldments and structurals) as a normal course of business. The firm eventually was the major customer for Millvale's scrap. Then in the middle sixties Millvale decided to use all of its own scrap in its foundries and manufacturing processes. It engaged Delano to receive, process and return the Millvale generated scrap. Delano is paid a service fee for this operation. Delano has just completed a specially designed ferrous foundry scrap preparation facility to service all Millvale plants in the East.

Over the years, A. Delano & Sons has occupied several different sites in and around Pittsburgh, all approximately within a 10-mile radius. The first location was on Center Street. In 1945, additional space was acquired on Jefferson Street, about one block from the other street location. The company merged with another salvage and scrap dealer named Dawson in 1947, and consolidated operations at the latter's property on Grove Street. Mr. Dawson became a salaried employee of Delano.

During 1955 a new facility was started on property previously purchased on Thorpe Road, about six miles from the firm's Grove and Jefferson Street sites. Some ferrous preparation equipment was installed there in 1958, and in 1962 the company moved its main office to this location. In 1965 all of the equipment maintenance was consolidated at the Thorpe Road plant, and in 1967 most of the nonferrous operations were also moved there. By the end of 1970, the Jefferson Street operation was shut down and sold. The Grove Street facility survives as an integral part of the machine shop subsidiary.

Gus Delano has been very active in Pittsburgh's community affairs since the early 1930's and has served on the executive boards of civic organizations such as the American Legion, the American Red Cross, as well as on the Board of Directors for local hospitals. Gus, his wife,

and two sons attribute the success of the company in large part to their participation in community affairs.

Overview

By the summer of 1972, A. Delano & Sons had largely completed the consolidation of all operations at the Thorpe Road plant. This facility currently represents a capital expenditure of over $5.0 million and includes a 40-acre site within the original Thorpe Road property. In addition, the firm set up a wholly-owned subsidiary, Processing Methods, Inc., with a ten-year contract with the Millvale Corporation to process three kinds of ferrous scrap--weldment, forgings and structurals--from Millvale manufacturing plants. Delano processes the material and returns it to Millvale without taking ownership. The contract establishes a processing charge for each ton handled.

The new processing facility is designed with significant overcapacity to facilitate a quick response to variations in the scrap needs of the Millvale plants and to have the growth potential for readily handling scrap from more distant Millvale manufacturing plants, up to 400 miles away. Currently ferrous scrap comes in from nine plants, one about 200 miles south. A significant factor in the design of the processing systems is the minimal dependence on manpower--only 15 men are needed to run all three processing lines.

Although the relationship with Millvale comprises more than 40 percent of Delano's sales and over 50 percent of the ferrous scrap handled, it is not likely to entail downside risk. The relationship has been a long and friendly one, and the current situation has been set up on a firm contractual basis, committing both parties for a minimum of ten years and providing for an extension beyond that period.

Delano's unique relationship with Millvale and the timing of their cooperative ferrous processing operation has, over the past three years, offset significantly the effects of the business downturn in the United States and its attendant pressures on salvage dealers. Delano has shown some growth in this period. Admittedly the company has had to build nonferrous as well as non-Millvale ferrous inventories, but these represent less than 60 percent of overall throughput; therefore, the carrying costs and decrease in selling revenues did not make themselves strongly felt.

Although in the last fiscal year, 1972, sales were somewhat lower than anticipated--$10.2 million rather than $11.0 million, the current situation is sound and has set the base for a period of consolidation and adjustment.

The family-oriented management of the firm is similar to many other salvage firms. The father, Gus, and his sons, David and Robert, hold all the management level positions (see organization chart Figure 1). Though Gus remains the President, he has passed most operating responsibility to his sons. David is responsible for ferrous operations, ferrous processing equipment development, and all maintenance activities. Robert is responsible for nonferrous operations, administration, and accounting. All three men are involved in buying and selling operations and policy decisions.

Facilities

Site

A. Delano & Sons currently owns about 80 acres of land at the Thorpe Street location. The property lies within an industrially-zoned area some 11 miles from the center of Pittsburgh. The facility is flanked by a large food processor on one side and a smaller salvage dealer on the other. Delano's facility has a high steel panelled fence along the only side visible to the public. The site is located on a line of the Penn Central Railroad and has several spurs running into it, with a total of four miles of track.

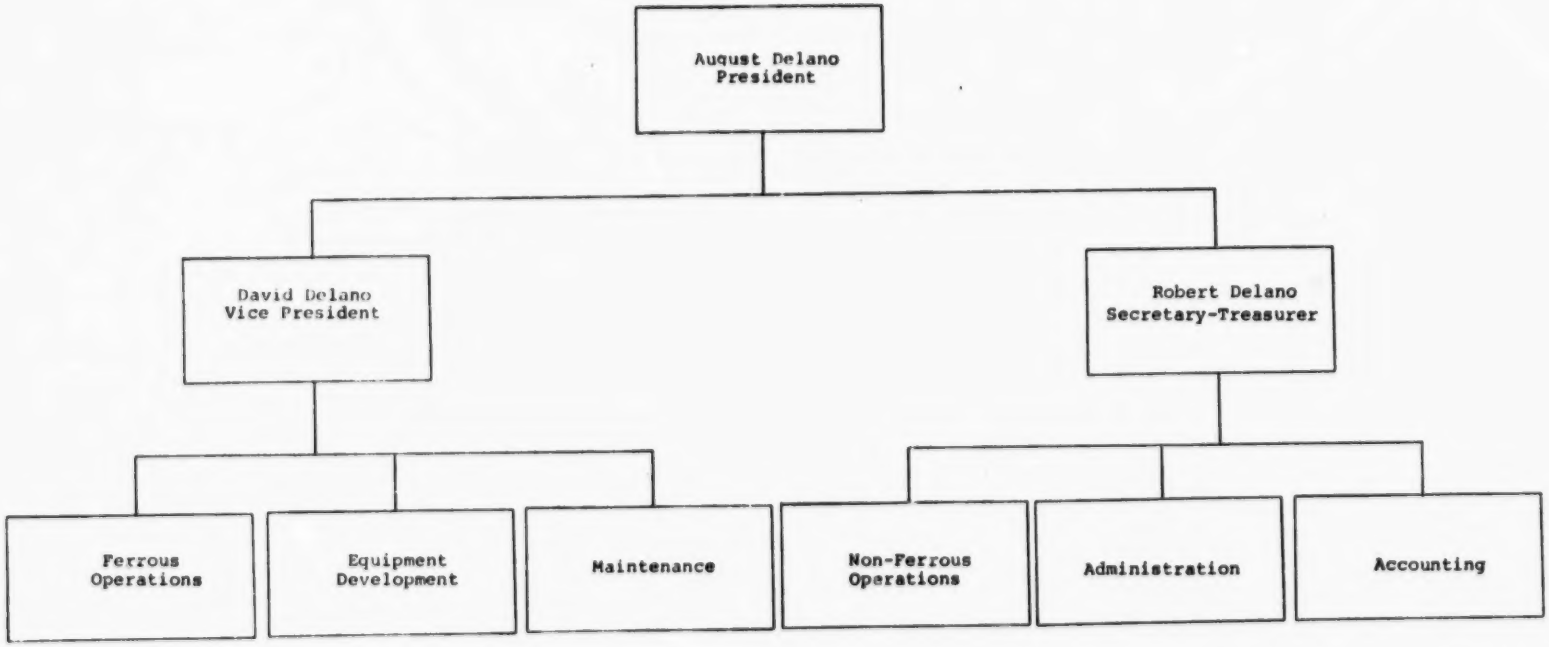
A. Delano & Sons has invested some $1.1 million in land and buildings at this site, about 35 percent of which was for land. All less than ten years old, the buildings are in excellent condition and well maintained. In general, they are inexpensively designed prefabricated metal structures with lightweight columns and trusses sheathed with lightweight steel or aluminum. The maintenance building was purchased as scrap, moved to the Delano property, set up on a foundation, had utilities installed, and is more than adequate for its purpose. The new building for the Millvale processing facility is very large and was designed and set up by a construction firm specializing in such work.

Of the total 110,000 square feet of enclosed space, 42,000 are devoted to the Millvale processing facilities, 48,000 to nonferrous processing and storage, 14,000 to

Figure 1

A. DELANO & SONS, INC.

ORGANIZATION CHART



Note: All three men are involved in buying and selling, general operations, and policy decisions.

equipment maintenance operations, and 6,000 to general offices. There is sufficient open space available to allow for considerable expansion in both processing and storage. See Figure 2.

Equipment

In the past 7 years A. Delano & Sons has expanded its relatively specialized, ferrous processing equipment and facilities to over $2.5 million of capital investment. Capable of over 300 tons per hour of ferrous processing throughput, this equipment has an annual capacity of some 600,000 tons. This expansion into special processing techniques results directly from the contract with the Millvale Corporation.

The specialized equipment includes large conveyors, oscillating type weldment crushers, shear type forgings fragmentizers, and guillotine type hydraulic shears for cutting structural scrap. Also included in these systems are large gas-fired vibratory furnaces. A more detailed explanation of the processing is given in a later section.

Other general ferrous processing equipment include shears and balers which provide an additional 50 tons per hour capacity. Thus, the total annual ferrous processing capabilities are some 650,000 tons.

Nonferrous operations are much less equipment-intensive than the ferrous procedures (see Table 1). Not nearly as costly as the equipment used in the ferrous operation, the total processing equipment in the nonferrous department costs less than $200,000 and most of it can be used in processing a wide variety of materials. For instance, the variable stroke balers are used on copper, aluminum, and brass, and the hand sorting conveyors are used to sort and/or segregate all types of mixed nonferrous scrap.

Virtually all of the equipment is owned by the company, and what equipment is leased--principally trucks and two-way radios--are worth less than $100,000. There are no plans to change this policy. Because of the recent heavy investment and the need to consolidate the new and enlarged operating base, Delano plans no new purchases of large equipment for the next year or two.

Figure 2

A. DELANO AND SONS, INC.

PLAN OF FACILITIES

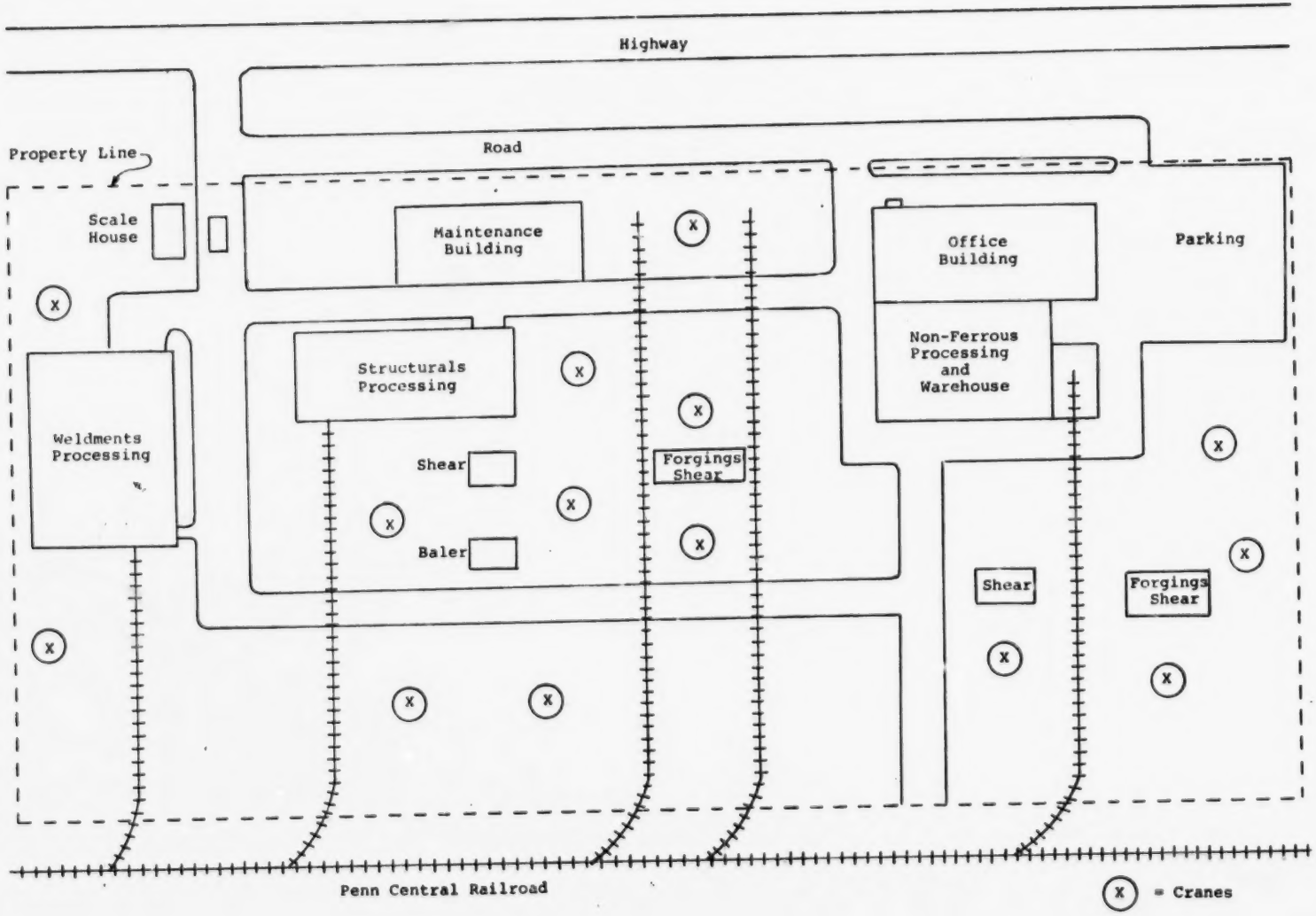


Table 1

A. DELANO & SONS, INC.

Equipment List

1972

Description	Quantity	Purchase Costs ($1000) Average	Total
Processing Equipment			
Ferrous			
Baler type shear with 40-tons-per-hour capacity	1	$400.0	$ 400.0
Shear with 15-tons-per-hour capacity (structurals processing)	1	200.0	200.0
Shear with 10-tons-per-hour capacity	1	150.0	150.0
Oscillating crusher with 30-tons-per-hour capacity (weldment processing)	1	150.0	150.0
Baler with 8-tons-per-hour capacity	1	70.0	70.0
Shear with 10-tons-per-hour capacity	1	35.0	35.0
Vibratory furnace	1	70.0	70.0
Shear type fragmentizer with 10-tons-per-hour capacity (forgings processing)	1	5.0	5.0
Sub Total			$1,080.0
Ferrous: Processing Methods, Inc.			
Oscillating crushers with 50-tons-per-hour capacity (weldment processing)	1	400.0	$ 400.0
Shear type fragmentizer, 1500 H.P. with 140-tons-per-hour capacity (forgings processing)	1	250.0	250.0
Vibratory furnaces	2	100.0	200.0
Stationary crane	2	80.0	160.0
Process conveyors	6	30.0	180.0
Sub Total			$1,190.0
Non-Ferrous			
Hydraulic balers with 10-tons-per-day capacity	2	23.0	46.0
Aluminum smelter with 10,000-pounds-per-day capacity	1	25.0	25.0
Industrial type incinerator with 4,000-pounds-per-hour capacity	1	15.0	15.0
Sorting conveyors for manual sorting of scrap	3	6.0	18.0
Alligator shears, small size, for manual cleaning of scrap	3	1.0	3.0
Sub Total			$ 107.0
Material Handling Equipment			
Cranes, crawler type	10	30.0	300.0
	5	50.0	250.0
	2	75.0	150.0
Vehicles			
Automobiles	8	3.0	24.0
Trucks			
Pickups	6	2.5	15.0
Dump Trucks	11	12.0	130.0
Tractors	12	20.0	240.0
Trailers	35	7.0	245.0
Forklifts	9	2.5	22.0
Railroad Equipment			
Switch engine, diesel electric	1	30.0	30.0
Gondola cars	4	20.0	80.0
Scales			
Inside scale with 5-ton capacity	1	20.0	20.0
Roadway scale with 202-ton capacity	1	50.0	50.0
Railroad & roadway scale with 202-ton capacity	1	70.0	70.0
Sub Total			$1,626.0
Grand Total			$4,966.0

Maintenance

The maintenance department includes a 14,000 square foot garage where vehicles and other movable equipment are worked on. The facilities contain a wide range of automotive repair and maintenance equipment, such as lifting racks, lubrication equipment, tuneup and test equipment, benches and special tools. Hydraulic system test and repair equipment is also on hand for the maintenance of shears, presses, balers, etc. Welding and cutting torches are also available for work on vehicles and heavy equipment.

Because of the large investment in all types of equipment, a substantial inventory of parts is maintained. This inventory includes both standard parts for vehicles, such as spark plugs, gaskets, O-rings, nuts, bolts, bulbs, and fan belts, and also special parts and assemblies for large processing equipment. These include jaws and hammer assemblies, bearings, drive belts, and gears.

A. Delano & Sons has 16 men and a foreman in its maintenance department. A number of the men are capable of working on a wide variety of jobs, both on vehicles and processing equipment, but, for the most part, each man specializes in one area.

While there is no formal maintenance policy, at least 90 percent of the maintenance work is done "in-house." Only those tasks which are infrequently required or are so specialized that it is unreasonable to develop and maintain a capability to perform them are handled by outside firms. For instance, both engine and transmission overhaul is done in-house, while tire recapping services are obtained from outside firms.

The company has no significant maintenance problems concerning the amount and type of equipment in use. Naturally, the large, heavily used processing equipment requires large amounts of maintenance time. It is estimated that some machines require between one and one-and-a-half hours of maintenance work each day. Much of this service is directed toward freeing scrap materials which are jammed in working sections or repairing broken hammers or jaws.

Processing

A. Delano & Sons has apparently developed one of the largest capacities for processing industrial ferrous scrap in the United States. The enormous amount of equipment which has been purchased and set up for the processing of ferrous structurals, forgings and weldments has given the firm an upgrading capacity based on single shift operation of some 600,000 tons per year. They have significant additional capacity to bring in scrap, sort, grade and reship it.

Most of the processing capacity came online in summer, 1972 and the company planned for this to exceed the needs of the Millvale contract. Therefore, Delano has the ability to expand buying and selling operations. Presently, the company's sources of ferrous scrap are dominated by the Millvale Corporation, which represents over 40 percent of Delano's volume on a tonnage basis. Another 40 percent comes from other established industrial accounts and the remaining 20 percent from the trade. The Millvale Corporation will remain Delano's largest single customer in the foreseeable future.

Virtually all of the ferrous materials are received and shipped by railroad, and the company has five railroad spurs totalling four miles of track, a switch engine and four gondola cars.

The special ferrous processing operation which Delano has developed centers around two tasks: size reduction and cleaning. Scrap iron and steel structurals are reduced by large hydraulically-operated crushers; forgings are broken in shear type fragmentizers which have been adapted by Delano for this function; weldment scrap is broken up into small pieces in specially adapted multiple action oscillating crushers. Figure 3 details the plan of the weldment processing facility.

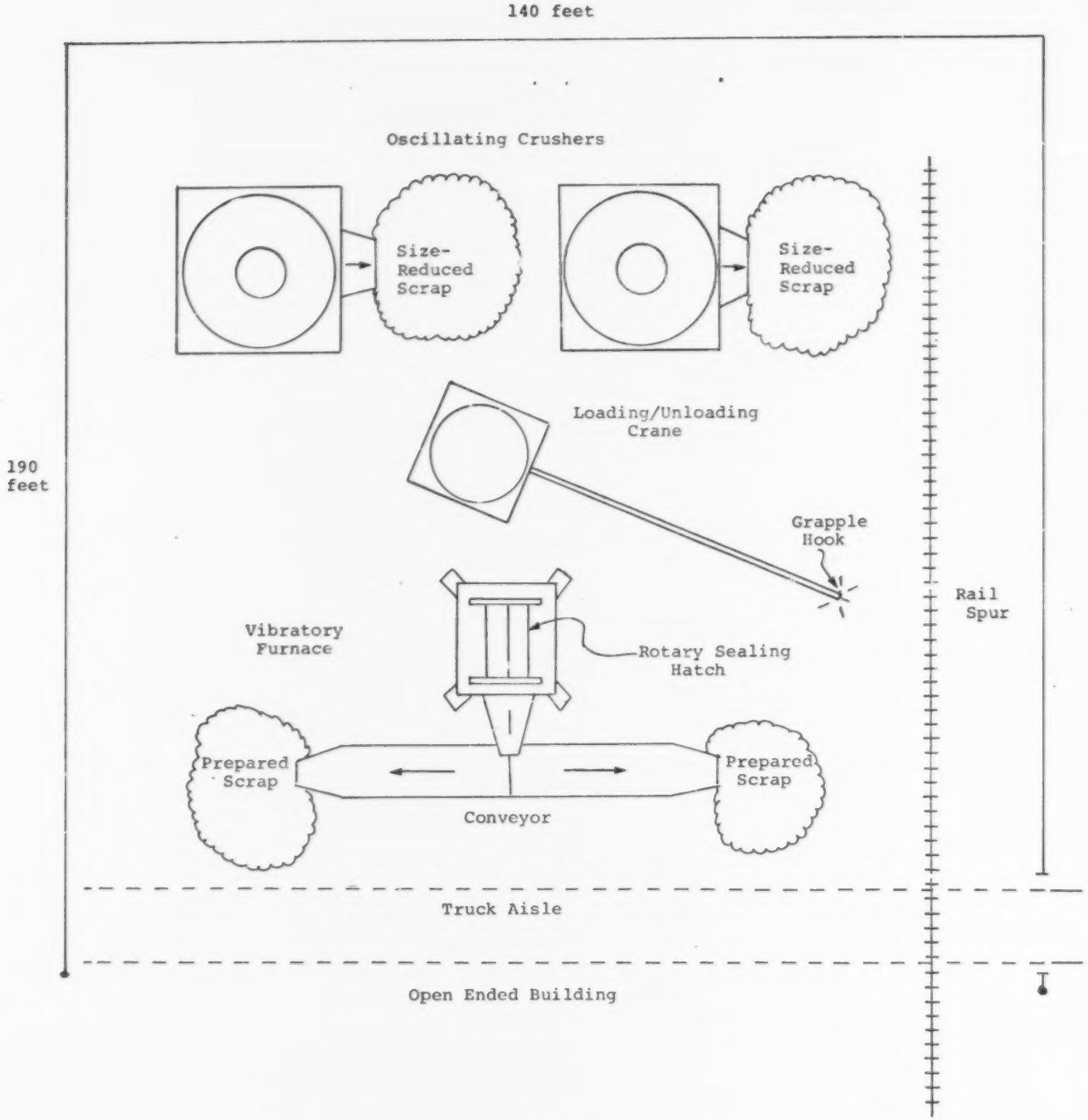
The weldment and structural materials are cleaned after size reduction by being loaded in batches into the chambers of large vibratory furnaces. Each chamber is about 12 feet square by 15 feet high and is internally fired by high-pressure gas. These furnaces have been specially designed by Delano and built for them by a large local furnace manufacturer.

Depending upon the origin and type of ferrous scrap received, the material is directed to one of three different

Figure 3

A. DELANO & SONS, INC.

WELDMENT PROCESSING FACILITY



locations. General scrap is accumulated in piles according to grade in the yard; when orders are received, it is sent through a shear for size reduction and is then inspected for the presence of unwanted materials which are removed. The scrap is then placed in gondola cars by a magnetic crawler crane for eventual shipment.

Scrap from Millvale or other sources which is to be processed by size reduction and furnace cleaning is sent directly to these processing areas. Because of the extensive railroad spurs and the layout of the equipment, it is possible to load weldment scrap and forgings directly from gondola cars into the appropriate size reduction machines.

The processing of scrap ferrous weldments is typical of the complexity of the three processes (see Figure 3):

- Unprepared weldment scrap, up to 5 feet by 20 feet, is loaded directly from railcars into the oscillating crushers.

- As scrap becomes size reduced it comes out of the bottom of the crusher onto a pile. Scrap is removed from each pile alternately by the crane and is loaded into the vibratory furnace through the rotary sealing hatch.

- In the vibratory furnace, the scrap is shaken, knocking off slag, metal fragments, dirt and rust; the burning gases remove paints, solvents, grease, oil and other organic contaminants, and the scrap is dried.

- As scrap is cleaned in the various levels of the furnace chamber it emerges at the bottom and flows out onto a steel link conveyor where it moves to piles for loading into rail cars or trucks.

In the most recent fiscal year, Delano processed over 8.4 million pounds of nonferrous materials, mainly copper, aluminum, brass, and lead. These materials represented about 40 percent of Delano's total revenue for that year. Based on the growth of the ferrous area, it is likely that this percentage will decrease in the future. The sources of nonferrous scrap differ considerably from the ferrous sources. Industrial nonferrous accounts provide about 30 percent while trade accounts generate approximately 70 percent.

In general, nonferrous materials are received by truck in the designated processing department where they are sorted segregated, and, if necessary, cleaned. Almost all of these operations are manually performed; the most notable exception is the removal of wire and cable insulation in the special industrial incinerator.

Manual sorting and cleaning of nonferrous materials can involve an infinite variety of procedures and techniques. Delano uses one of the more common procedures. After several 55-gallon open barrels containing mixed nonferrous assemblies, parts, devices and trinkets have accumulated, manual processing is undertaken. The man assigned to the job uses a power driven alligator shear which resembles a huge pair of thick bladed scissors. He picks up each piece, examines it and decides whether it is a pure metal or an item composed of mixed parts, for example, a brass faucet attached to a small piece of copper pipe or an aluminum coffee pot with a copper handle. After this evaluation, he either throws the single solid piece into a barrel containing only that material or grasps the piece and puts it into the jaws of the shear in order to break it and separate the different pieces of material. Then he throws the parts into their appropriate barrels.

Buying and Sales

A. Delano & Sons buys and sells scrap in approximately a 100-mile radius of Pittsburgh. It buys from some 80 industrial accounts and sells to some 50 users of secondary metals. About 10 percent, by weight, of its business is represented by brokerage, and this will be increased. The previously described relationship and contract with the Millvale Corporation of Pittsburgh is a large, stabilizing influence on Delano's operations and reduces the manpower requirements for buying and selling ferrous scrap.

Tony Delano, the founder, and his son, Gus, believed in fast turn-over of mateirals. In other words, they tried to sell material on the same day as the sale to avoid the risk of sudden price changes and to minimize the amount of money that was tied up in inventory. Today, the company currently operates in the style typical to larger salvage firms, that is, with an inventory turnover period of nearly a month. Despite the change, the emphasis is still on good buying practice, and the old salvage business adage, "Buy it right and it is half sold," is quoted by the sons as one of their philosophies. Another important Delano tradition is honesty and above-the-board dealings. It is a company policy that customers may inspect the Delano books at any time.

Gus, Robert and David Delano and Mr. Dawson all handle buying and selling operations. All four buy both ferrous and nonferrous. David and Robert sell ferrous, and Robert and Mr. Dawson sell nonferrous. The company expects to hire another buyer in the near future to develop ferrous supplies for the Processing Methods, Inc. operation.

Buying and selling operations are closely followed by all those involved by frequent informal daily contacts--both face-to-face and phone. The Delanos and Mr. Dawson operate together very effectively. In practice buying is done to meet anticipated sales. They know the approximate amounts and types of materials that are coming in from their regular industrial suppliers, and at the same time, they have good knowledge of what sales contracts they have made and/or are going to make. Since total sales always exceed the amounts coming in from regular accounts, they make up the difference by additional purchases. The inventory is used as a buffer letting it rise and fall according to the flow of materials coming in and going out. To a certain extent, overtime or two-shift work is also used to speed up processing and thereby increase throughput.

Little speculation in nonferrous markets is done and some ferrous speculation is occasionally practiced.

The arrangements with Millvale Corporation usually involve two men at the Millvale plants--the purchasing agent and the assistant purchasing agent. These men set the daily/weekly levels of scrap leaving the particular plant and the levels required to be delivered. The Delanos have a close relationship with these men and are in frequent contact with them. Currently, the firm is servicing nine Millvale plants up to a distance of 250 miles from Pittsburgh, but it does not become involved in freight costs on Millvale materials.

Pricing of Delano's processing service for Millvale has been worked out in the contract and varies according to the given material and the amount of processing required. Weldment processing is charged at $7.50 per ton, structurals at $2 per ton, and forgings from $4 to $8 per ton.

Pricing procedures for other ferrous and nonferrous scrap are similar to those of other firms in the salvage business. A general spread of $8 to $12 per ton is placed on ferrous materials and $.03 to $.06 per pound on nonferrous. The actual price quoted (or paid) to a supplier

is the market price less the spread. For instance, the Cleveland market price for Number 2 heavy melting as quoted in Iron Age magazine is, $30 per ton. Subtracting the spread of $10 per ton from the market price leaves $20 per ton, which is the price quoted, and paid, to the seller.

The spread is made up of the freight charges between Cleveland and Pittsburgh, about $5, and the cost of processing and handling (and profit), another $5. This totals $10 per ton and is used as the rule-of-thumb for starting negotiations. The actual spread used may vary up or down about $2, depending on factors such as size of the shipment.

Administration and Management

Administration and management at A. Delano & Sons can be characterized as informal and friendly. There is a good deal of give and take among the Delanos on matters which have implications for the company as a whole. Relations with the 106 hourly and 20 salaried employees are good, and some of the employees have more than 15 years service with the company. Like most salvage firms, Delano has difficulty attracting competent men, particularly for positions of responsibility on the large processing equipment. It has yet to discover a solution to this problem.

Wages and benefits at Delano are good. Wages range from $3 per hour for a starting laborer to $3.30 per hour for a truck driver and for a shear operator, to $3.55 for a maintenance mechanic and to $3.65 for a crane operator. These are minimum levels; actual wages may be up to $.60 per hour more.

Delano's benefits plan offers 10 holidays with pay; time-and-a-half for overtime work; a group medical insurance plan, paid half by the company and half by the employee; a pension plan; and an annual vacation of 1 week for up to 3 years of service, 2 weeks for 4 to 10 years, and 3 weeks for over 10 years. The company also gives a Christmas bonus of a day's pay. Benefits cost the company $.60 to $.80 per hour per employee.

The hourly employees have been organized by the Teamsters Union, and the relationship between the Union and the company is excellent. There have been no strikes, and there is a union-management agreement in force. The agreement calls for a $.20 per-hour raise for employees in 1973.

The large increase in processing equipment and the attendant enlargement of ferrous handling capacity have been effectively carried out from both the employee and administration viewpoint. Employees were permitted to bid on new jobs and several were transferred. The expansion itself did not require the addition of large numbers of men, so it did not disrupt relationships within the organization.

Control

A. Delano & Sons has a new chief accountant responsible for the standard accounting functions such as payroll, accounts payable and receivable, and freight billing. In addition, he prepares monthly reports which give the cost of handling and processing in each department.

Control of inventory levels is maintained by David and Robert through their buying and selling activities. Always in touch with the total situation, they are able to maintain reasonable inventory levels. For immediate information on the exact level of any one particular grade of material, they sometimes have to call one of the foremen, but usually they know the information themselves. This intimate knowledge of buying and selling volumes, inventory levels and cash flow allows the brothers to control working capital on an informal but regular basis.

The company does no formal departmental expense budgeting, financial forecasting, or capital budgeting. These are all worked out continuously with decisions made on a daily basis.

Finance

As mentioned previously, in the past seven years, A. Delano & Sons has financed one of the largest buildups of heavy ferrous processing equipment in the salvage industry. This buildup has required large sources of financing, a sophisticated approach to financial management, and the spirit and foresight of experienced businessmen. In the last fiscal year, sales were approximately $10.2 million. However, the projected processing capacity will boost potential volume to the point where Delano's size will be comparable to that of salvage firms with annual sales of $23 million. (Hypothetical annual ferrous sales of 550,000 tons or $20 million, plus actual nonferrous sales of $3 million.)

The 1971 financial statements (see Tables 2, 3, and 4), the 1972 list of equipment (Table 1) and other factual data supplied by the firm indicate that the new investments total about $2.5 million. This amount approximately equals the annual sales figure of only five years ago.

Delano's ability to carry out this expansion program is due to astute management of finances throughout the history of the firm, the relationships that it has formed in the financial and business community, and the careful development of its marketing strategy--fast service, honestly extended.

Financial management at Delano is not a formalized report-oriented concept. Rather, it hinges on a careful following of the basic day-to-day movement of funds as buying and selling progresses and the interaction of the major executives of the firm, Gus, David and Robert. Over the years of operation, sensitivity to the financial implications of customer attitudes and service, inventory turnover, and of profitability and growth have become an integral part of these men's business methods. They work closely with the company's public accounting firm which produces quarterly and annual financial statements and provides special fiscal services and advice when needed.

Delano has a close and longstanding relationship with two local banks. Since its founding, it has dealt with a small bank that is no longer capable of supplying all the needed funds. Currently, this small bank handles Delano's cash account, payroll account, and buildings financing. The larger bank handles payables and large borrowings for equipment and extends a $500,000 line of credit to the firm.

A key factor contributing to Delano's success has been the careful nurturing of its marketing approach, that is, sensitivity to the customer. Years of consistently maintaining this policy has made the firm a powerful competitor within the industry and an organization that banks, scrap suppliers and users, and the general business community respect. The very close relationship with the Millvale Corporation is a direct out-growth of this approach.

Current asset management at A. Delano & Sons tends to be different than at most other salvage firms, because it does such large amounts of contract processing for the Millvale Corporation. Since Delano neither takes ownership of the materials nor pays any freight expenses, the amount of funds tied up in inventory at any given time is proportionately less than for other firms with the same processing

Table 2

A. DELANO & SONS, INC.

BALANCE SHEET -- DECEMBER 31

	1971	%
Assets		
Current Assets:		
Cash	$ 212,801	7.0
Accounts Receivable	1,078,686	35.3
Inventory	288,399	9.4
Other	16,654	0.5
Total Current Assets	$1,596,540	52.3
Fixed Assets:		
Autos and Trucks	$ 194,405	6.4
Machinery and Equipment	1,653,971	54.1
Buildings, etc.	255,080	8.4
Leasehold Improvements	62,138	2.0
Land	148,001	4.8
Other	30,787	1.0
Total	$2,344,382	76.7
Less Accumulated Depreciation	911,771	29.9
Total Fixed Assets	$1,432,611	46.9
Other Non-Current Assets	25,642	0.8
Total Assets	$3,054,794	100.0
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts Payable	$1,116,280	36.5
Notes Payable	468,705	15.3
Other	163,264	5.3
Total Current Liabilities	$1,748,249	57.2
Long-Term Debt and Stockholders Equity	1,306,546	42.8
Total Liabilities and Stockholders Equity	$3,054,794	100.0

Table 3

A. DELANO & SONS, INC.

STATEMENT OF INCOME FOR YEAR ENDING DECEMBER 31

	1971	%
Sales, Net	$9,076,806	100
Cost of Goods Sold:		
Beginning Inventory	$ 452,988	5.0
Plus Purchases	6,551,033	72.2
Less Ending Inventory	288,399	3.2
Net Material Cost	$6,715,621	74.0
Cost of Processing and Handling	1,650,974	18.2
Total Cost of Goods Sold	$8,366,595	92.2
Gross Profit	$ 710,211	7.8
Operating Expenses	388,592	4.3
Net Operating Income	$ 321,619	3.5
Other Income	3,045	
Total Operating Income	$ 231,902	3.6
Less Other Expenses	85,578	0.8
Net Profit Before Taxes	$ 239,086	2.6
Income Taxes	108,913	1.2
Net Profit After Taxes	$ 130,173	1.4

Table 4

A. DELANO & SONS, INC.

COST OF PROCESSING AND HANDLING

	1971	%
Salaries, Wages, and Benefits	$ 656,069	39.7
Freight	112,676	6.8
Plant Supplies and Expenses	112,447	6.8
Maintenance	264,281	16.0
Depreciation	276,476	16.7
Rent	48,010	2.9
Vehicle Registrations and Insurance	74,024	4.5
Utilities	55,619	3.4
Taxes	51,372	3.2
Total	$1,650,974	100.0

volume. This fact can be demonstrated by an examination of the beginning and ending inventory levels in Table 3. The average of these figures is $371,000 or about 4 percent of the annual sales of $9.07 million. In other words, Delano has an "apparent" inventory turnover rate of 25 times a year, whereas for other similar firms, the rate is closer to 10 to 12 times a year. Ferrous and nonferrous materials which are actually owned by the firm are turned over at the more conventional rate.

Delano needs a cash inflow each month of approximately $280,000 in order to support all operating expenses and service its loans. In order to be well protected, the firm needs to maintain a minimum sales level of $340,000 per month. This cash situation is eased by the Millvale Corporation which makes it a policy to pay twice a month.

Funds for investment activities undertaken recently by Delano have come from three conventional sources, and in this order, retained earnings, depreciation, and debt. However, with large equipment investment, depreciation will now become the most significant generator of funds.* Bank debt for equipment purchases is made on an individual basis for the mortgage value of the particular fixed asset.

Because of the large amount of ferrous processing, Delano has a relatively high cost for processing and handling (see Table 4) - 18 percent of annual sales. The figures reported are for fiscal year 1970 and are actually somewhat lower than the current figures, since a great deal more of the processing equipment has been set up and brought online. These current figures, however, are not available.

Problems

The problems confronting A. Delano & Sons center mainly around the expansion program and, consequently, the changes this program has necessitated in the character of the firm. First, Delano must assimilate and mold the enlarged ferrous processing capability. The firm must bring the capacity

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*Each year depreciation charges are taken as an expense against sales revenues. This reduces profit before taxes and makes additional revenue funds available for company use.

totally and effectively online, keep it operating, learn how to control maintenance problems and costs, and discover the quirks and weak spots of this complex set of processing lines. The problems will, no doubt, be difficult and sometimes frustrating, but ten years of experience in large equipment setups provide a sound base for meeting all the challenges of the current expansion.

Second, the firm must build its supplies and sales of ferrous scrap to fully utilize the capacity of the lines. With the Millvale ten-year contract in force, Delano is assured a better than break-even situation, therefore, additional processing in the ferrous lines will contribute significantly to profits and thus stimulate further, long-term growth. A deterrant to expansion is the limited radius in which it is economical to pick up and deliver ferrous materials; that is, past a certain distance, the transportation costs increase to the point where they become too large for the markets to bear. If processed ferrous scrap can be shown to customers to be a "different" or "special" product more suitable for their uses, then Delano should be able both to offset, to some extent, transportation costs and to be more competitive in its market region. It is likely that both these aspects can be developed.

Another important problem facing the Delanos is that of reducing the discharge of particulate matter and obnoxious gases from the vibratory furnaces. Because of the remote location of the plant there is no outside pressure to reduce the discharges, but it is anticipated that within a few years it will be unavoidable.

Plans and Planning

The planning function at A. Delano & Sons is largely an extemperaneous extension of their daily activities and therefore has required little formalization. Actual plans and objectives for the next year or so are not well defined as part of an overall strategy for the firm. With its recent growth, however, the Delanos have become more aware of the need for more closely and explicitly defining objectives.

Among their current plans is a move to acquire a smaller salvage firm in the region to serve as a collection point for ferrous materials. This yard would serve as a feeder to the Pittsburgh plant ferrous processing operations. Related to this activity is a plan to hire a field salesman to expand ferrous purchases and sales and thus increase the ferrous

throughput. The Delanos are also planning to restructure the corporate makeup of the firm in order to obtain the maximum benefits of its current larger size.

L. FARBER, INC.

A CASE STUDY

L. FARBER, INC.

History

L. Farber, Inc. was founded in the 1920's in Joliet, Illinois, a relatively small town centrally located in a large concentration of manufacturing plants and foundries. The founder, Leonard Farber, had interests in both his salvage business and in other nonrelated business dealings, which included real estate and a commercial laundry. Earl Farber, the founder's son and current president of the company, worked in his father's salvage yard during his childhood, gradually learning the various processing operations and gaining an interest in the business aspects of the firm.

Earl, who was born in 1913, studied liberal arts and law in college. After receiving his law degree, he decided to settle in Washington, D.C. and pursue a career in government work. After two years he was drafted into the Coast Guard and spent most of the duration of the war stationed on small Coast Guard auxiliaries on Lake Michigan.

Following his discharge in 1947, Earl returned to his home and took over the operation of the scrap metal business. Sales at this time were approximately $200,000. Unlike his father, Earl gave his full attention to the salvage area. By expanding the various grades of scrap handled and by improving services to suppliers and customers, Earl Farber transformed the company into a larger and more profitable enterprise.

In recent years, as his interests broadened and he sought other promising areas of business, Earl gradually transferred responsibility for day-to-day operations to a yard foreman. Earl now spends about one quarter to one half of his time overseeing the operations of the yard and is responsible for all policy decisions.

Current Overview

In 1971 L. Farber, Inc. had sales of approximately $2.6 million. This was split between the three operating departments: ferrous, 40 percent; nonferrous, 55 percent; paper and textiles, 5 percent.

The ferrous department regularly processes turning plate scrap and cast iron engine blocks. The nonferrous

department handles copper and copper alloys, lead and many high nickel alloys. Other salvage items include paper and textiles. See Figure 1 for the firm's organization chart.

Earl Farber is President of other closely-held corporations, which are not related to the scrap metals business. Among these are the Desplains Laundry Service, Inc. and E. A. L., Inc., a management consulting firm.

His attitudes regarding the recycling of municipal post-consumer waste reflect the views of many salvage executives throughout the country. He would be interested in expanding his present scrap operation to include the collecting and processing of municipal waste if markets existed and if technology could be developed to yield a "reasonable" return on his investment. He feels that he has the technological capability to design a working system to process municipal wastes, but that transportation costs are the major restraining factor.

Community pressures on the firm to participate in municipal recycling are not significant. There is no major environmental movement in the area, in contrast to other regions of the country where salvage firms have been under pressure from local groups both to clean up existing facilities and to participate in municipal recycling programs.

Facilities

Site

Corporate headquarters and processing facilities are in Joliet near Interstate Highway 80. The land and buildings which comprise the scrap processing and storage facility at Joliet are owned by the firm. The site consists of approximately 12 acres, 12,000 square feet of which are enclosed for indoor processing and storage. As shown on the site layout in Figure 2, the processing facility is located along a railroad line and is approximately 600 feet wide by 800 feet long. None of the open areas is paved, a factor which causes some operating difficulties during wet periods.

Joliet is an industrial town, with numerous manufacturing facilities. There have been no zoning or beautification pressures on the processing facility, and the appearance of the yard does not detract significantly from other industries and businesses in the vicinity.

Figure 1

L. FARBER, INC.

ORGANIZATION CHART

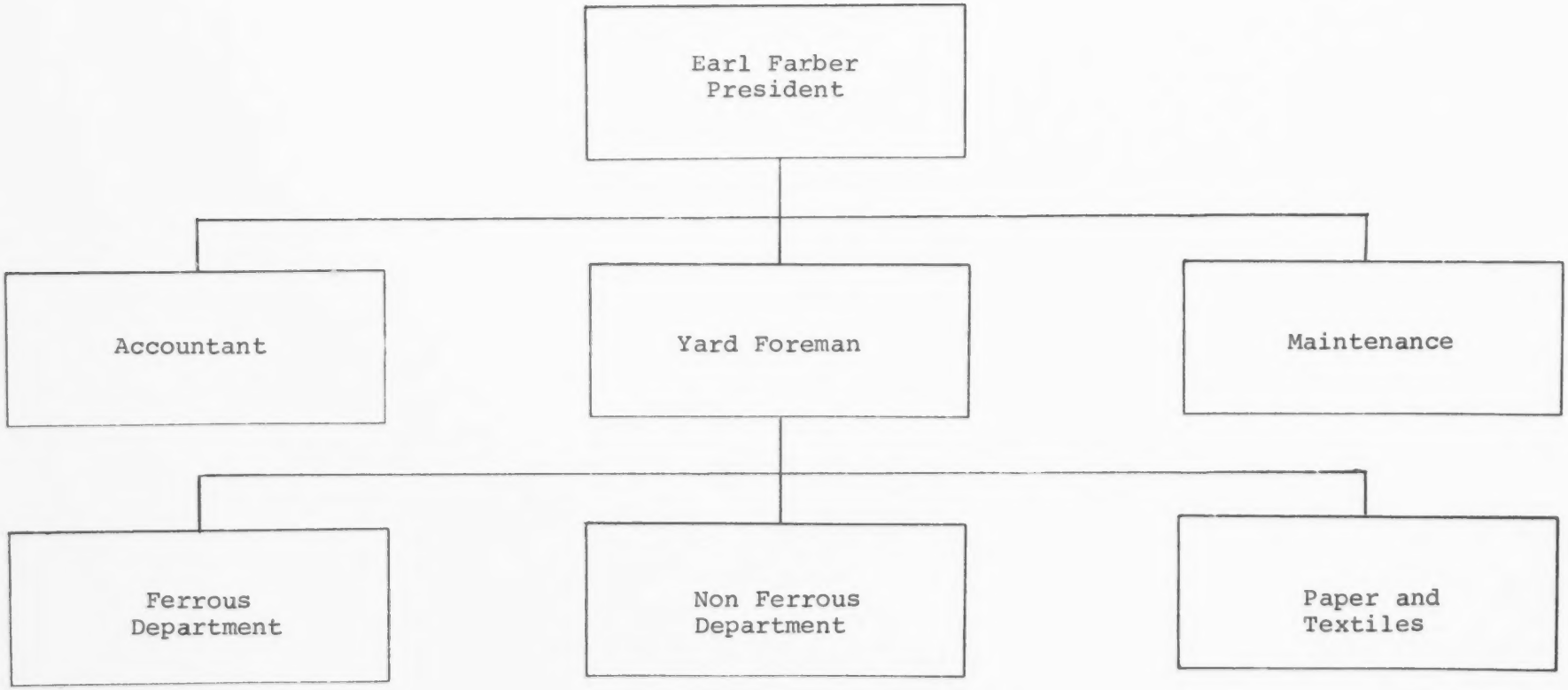
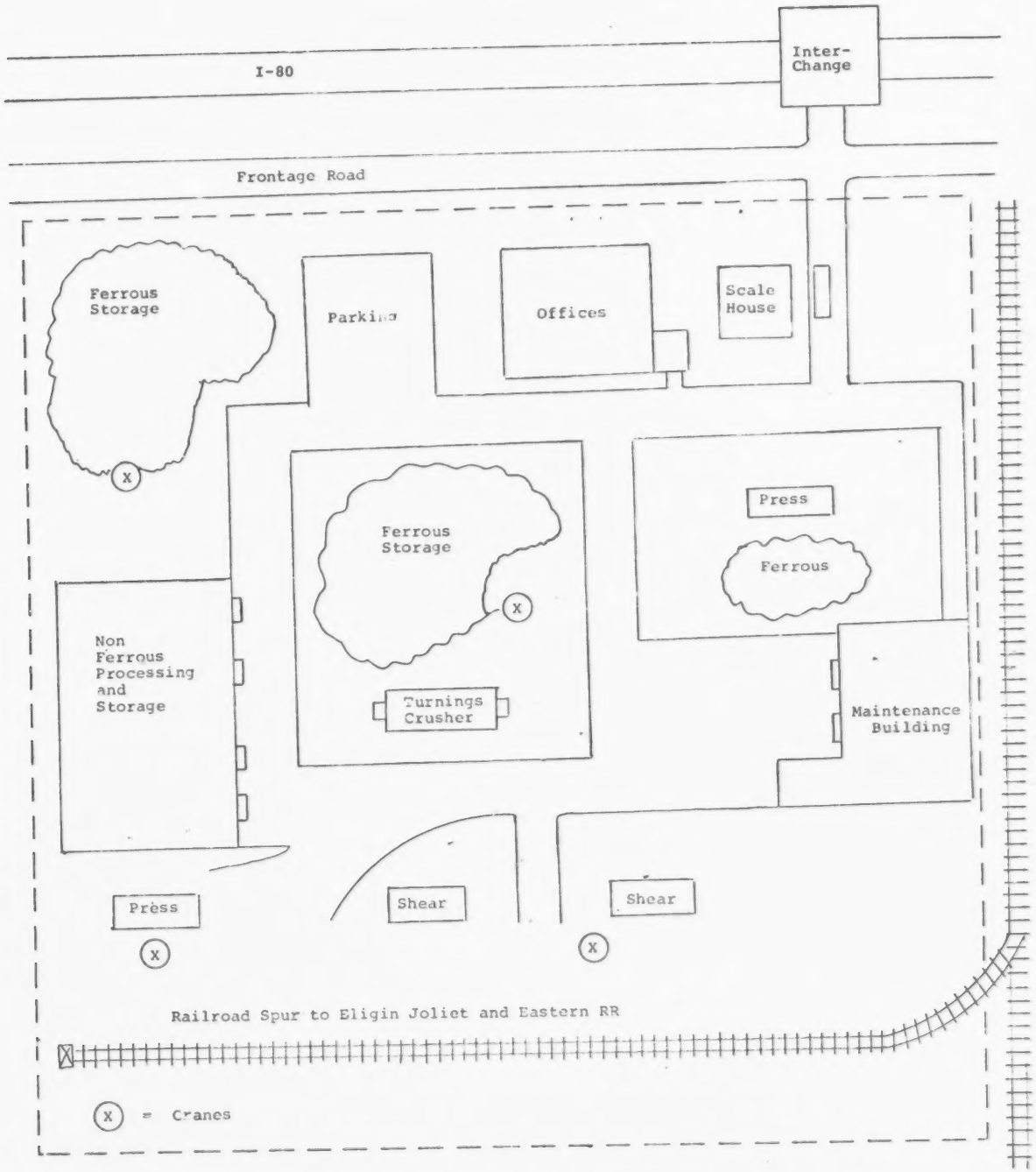


Figure 2

PLANT LAYOUT



Equipment

Major pieces of processing equipment include ferrous shears, presses and hand-picking conveyers, and alligator shears and presses for nonferrous. Major materials handling equipment includes cranes, trucks, and tractors. See Table 1 for a detailed equipment schedule. A number of trailers, tractors, cranes, and presses are leased from a wholly owned equipment leasing subsidiary.

The most expensive piece of equipment is the turnings crusher, which, if purchased new, would cost $85,000. One of the large ferrous presses has a replacement cost of approximately $72,000.

There are three nonferrous presses; each is capable of processing several types of nonferrous scrap. Nonferrous processing equipment is not used to capacity, for instance, the hand-picking conveyors are used only two to three days per week, and only occasionally is it necessary for the plant to work an extra shift to meet customer demands. The capacity of existing equipment is considered adequate to meet all future needs.

Some attempt has been made to determine costs and profitability associated with processing operations by each major piece of equipment; but meaningful cost allocation has proved to be difficult to develop. The firm has made some progress in accounting for the costs associated with its trucks, and a continuing effort is being made to assess the profitability of equipment-related processing operations.

Maintenance

All maintenance is performed at the Joliet facility except for major truck overhaul work which is done by a local garage. There is a maintenance shop for the trucks, and a preventive maintenance program has been in effect for some time. Four men are in the department: a working foreman, two in the truck and vehicle area, and one in equipment maintenance.

Machinery maintenance is a critical issue, particularly for the hydraulically-operated presses and shears. These are heavy-duty machines and have been subject to frequent breakdown problems, with at least one of the four presses out of service at any given time. The machinery mechanic has a great deal of experience and is particularly skilled with hydraulic systems.

Table 1

L. FARBER, INC.

EQUIPMENT LIST

Description		Quantity	Original Costs ($1,000) Average	Total
Processing Equipment:				
Presses:	Ferrous	2	24	48
	Non Ferrous	3	12	36
Shears:	Ferrous	2	15	30
	Non Ferrous	3	1	3
Turnings Crusher		1	38	38
Sub Total				155
Material Handling Equipment:				
Cranes, crawler type		4	16	64
Trucks		9	8	72
Tractors		7	7	49
Forklift Trucks		3	7	21
Hoists		4	1	4
Conveyors		10	1	10
Sub Total				220
Total				375

All maintenance is scheduled during normal working hours, except on infrequent occasions of full capacity operation. In those cases, maintenance is performed after daily shutdown.

Processing Operations

All incoming scrap, except obsolete railroad cars, is delivered by truck to the Joliet yard. Most of the ferrous scrap comes from approximately 28 small auto wreckers and ferrous processors in the rural areas east of Joliet. This scrap is delivered in small quantities of up to 5 tons in the dealers' trucks. Nonferrous scrap comes from a number of different sources, and most of it is transported to Joliet in company trucks. About 50 percent comes from local utilities, plumbers, and electricians, and the balance from outside the local area, up to 175 miles away. There are approximately 70 sources of nonferrous scrap. Much of the scrap which comes from distant sources are materials which have a particular desirability for certain consumers. Often they are available only as a scrap by-product from specialized production processes.

Incoming ferrous turnings are piled in the yard to await processing through the crusher. Approximately 20 to 50 tons are awaiting processing, on the average. Other ferrous scrap is received into the plant where it is first size-reduced with cutting torches or ferrous shears to produce relatively uniform pieces, then it is segregated by type. Refer to Figure 3.

Nonferrous processing, because of the higher value of the materials involved, is often more labor-intensive than ferrous processing. Mixed nonferrous scrap, for example, is usually sorted on hand-picking conveyors to segregate the materials; scrap which is received in segregated form or has been segregated is either put in piles by alloy and grade, packed in containers for shipping or sent to the presses for compaction into small uniform bales. The nickel alloys are packed in heavy duty corrugated boxes for shipment; the copper-based alloys are usually compacted; lead and lead-based scrap is sent directly to a local smelter, loose, in truck load lots. See Figure 4.

Quality control, particularly in the nonferrous areas, is of primary importance. Users of processed scrap can tolerate only certain specified amounts of impurities, and if a load of processed scrap exceeds the acceptable impurity

Figure 3

L. FABER, INC.

FERROUS PROCESSING

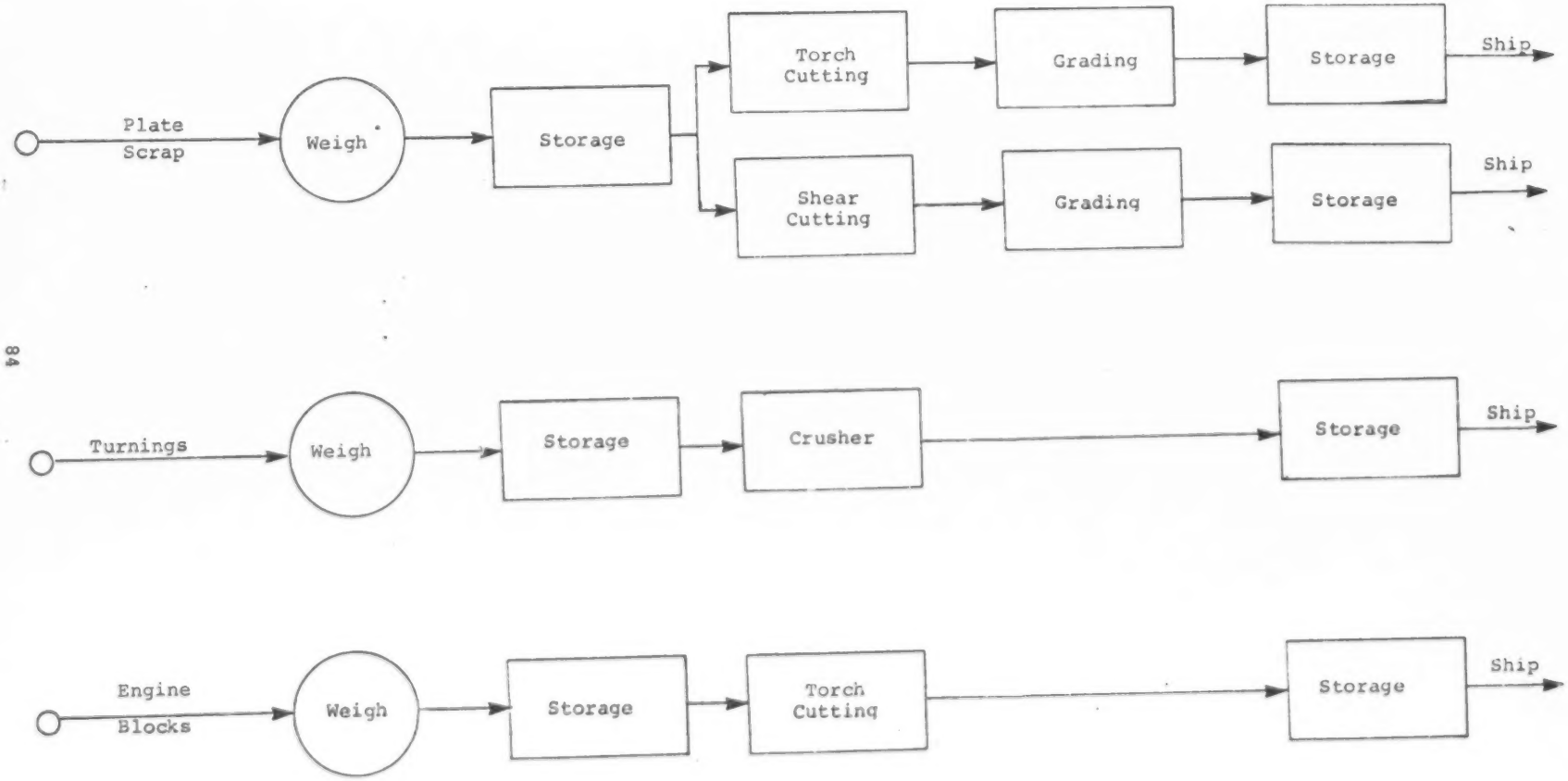
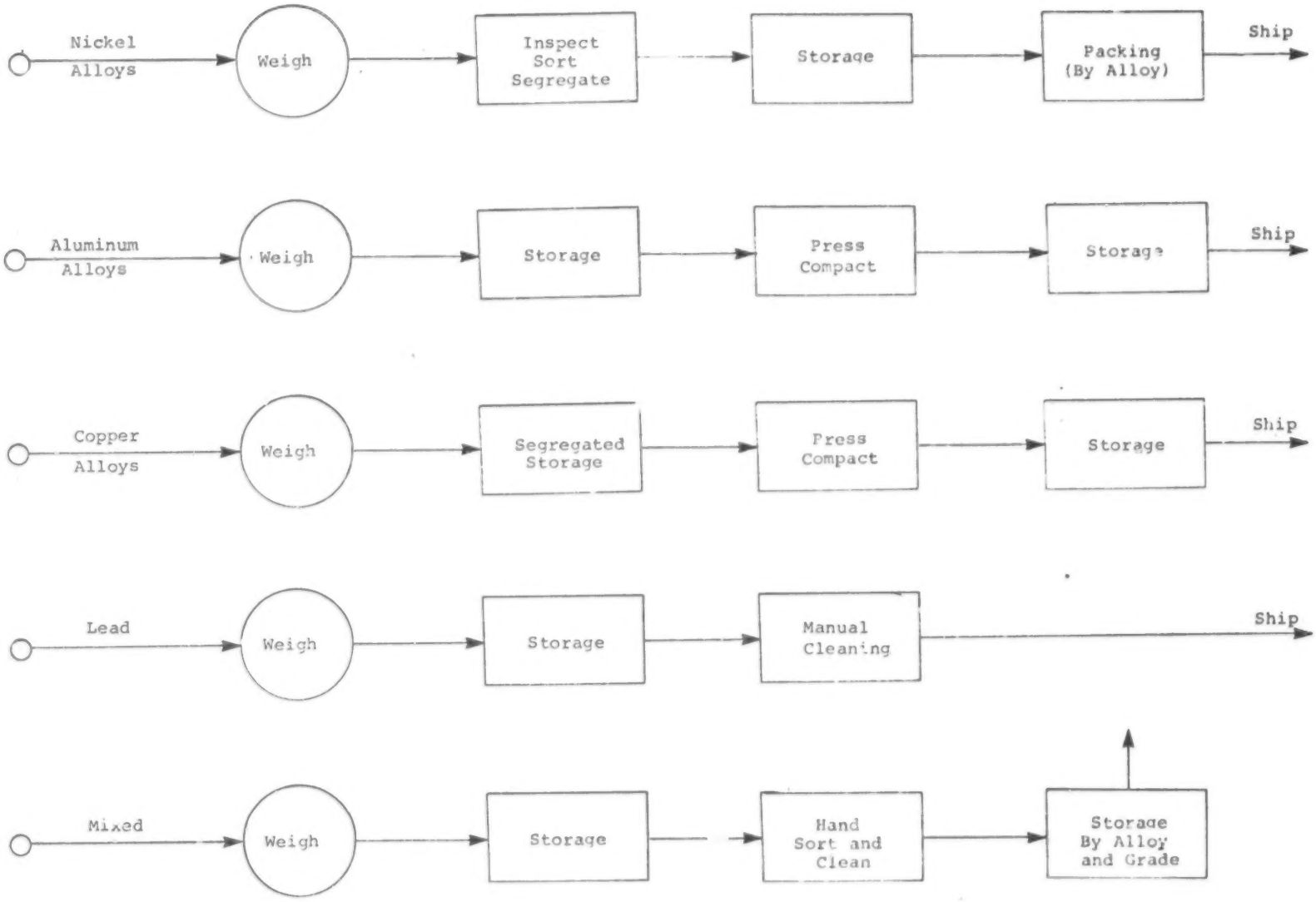


Figure 4

L. FARBER. INC.

NON-FERROUS PROCESSING



limits, it is likely to be rejected, thereby resulting in costly additional transportation and reprocessing. Quality control is primarily the responsibility of two men who work at the receiving and sorting stations in the nonferrous building. They sort through incoming loads of nickel alloys and segregate the various types into containers for final processing. They are also responsible for the controlling of other materials. The men who hold these positions are skilled and can identify materials quickly. They use a variety of techniques to identify ambiguous materials. This includes small pocket magnets, hard tool-bits to attempt to scratch or strike a spark, and simple chemical solutions.

Scheduling of processing operations is handled by the general foreman, with department foremen in charge of the various processing operations. Process scheduling is difficult to plan ahead due to the uncertainties of raw material delivery and demand for processed materials. Accordingly, scheduling is generally performed on a one or two-day-at-a-time basis. None of the processing equipment is utilized to full capacity all of the time because of the scheduling uncertainties and fluctuations in supply and demand.

Inventory control is not formalized and in general, the flow of materials into and out of the firm is recorded on a simple card system which is maintained at the receiving/shipping areas of each department.

Most processed materials are delivered to customers in Farber trucks. Except for a major nickel consumer located 170 miles from Joliet, all customers are within 70 miles of the plant. This large nickel user picks up the processed nickel in its own trucks. Most ferrous scrap is used by local plants which are within 25 miles of the firm.

Buying and Selling

Farber has been consistently successful in marketing processed scrap to mills and other major customers, mainly by identifying and providing a range of products and services. An example of the services provided by the firm involves a nickel user which had recently experienced a significant price rise in its raw materials. Earl arranged for a testing laboratory to conduct an analysis of the usual raw material input, which he then matched with the analyses of various batches of processed scrap. Upon finding a suitable mix of scrap he was able to provide the mill with a lower priced but technically adequate material substitute.

L. Farber does very little brokerage business, although brokerage sales were as high as $3 million per year sixteen years ago. Discontinued in 1957, this brokerage operation involved three steel mills. One contract was terminated when the mill was purchased by a larger [illegible] which directed some major changes in the mill's scrap pu[illegible]sing procedures. Earl took the other mills' brokerage business because he saw the opportunity to provide a service to the mills and to the scrap processors that served the mills while making a good profit.

Although he was able to improve the standards of fairness between buyers and sellers, the mills were slow in paying for scrap deliveries. Delays in final payments from the mills and a number of operational problems in the relationships, however, soon caused profits to decline to the point where operations were not paying their way. For this reason, the brokerage business was sold.

Most buying activities are handled entirely by the general foreman. Ferrous buying requires little of his time, because prices are relatively easy to establish and the sources bring their loads in on a fairly regular basis. Payments and day-to-day dealings with smaller suppliers like wreckers and junkmen are handled by the scale operator at the front gate.

Nonferrous buying activities require much more time for several reasons: prices fluctuate significantly; quantities delivered are large, both in volume and in dollar value; pickup distances tend to be considerable; pickups are made in the firm's own trucks. Fortunately, most sources of nonferrous scrap have yielded steady supplies for a number of years, so there is little uncertainty as to the quantities available. Prices are set by the mills or other users, and the price which is paid the supplier is determined by subtracting from the current user price an allowance for transportation, processing, overhead, and profit.

L. Farber has two basic ways of paying his suppliers for scrap: the small over-the-scale supplier is paid in cash or check as he leaves the plant; other larger suppliers are paid as part of the regular sequence of disbursements made by the accountant. Depending on business conditions and general policy, the time delay ranges from 40 to 70 days from receipt of materials.

Farber does not engage in speculative dealings on a regular basis. Occasionally, because of the 30-day guarantee period available on scrap prices, the firm will "sell short" in order to take advantage of an expected price downturn. That is, they can "sell" the material at a firm price without actually owning it, buy it within 30 days at the lower price, and deliver it to the customer.

Administration and Management

Earl Farber's expanding interest in other business areas has resulted in significant delegation of the day-to-day management of the salvage operation to the general foreman. Earl keeps in close touch with the operations at the processing plant, but most of his time and energy is devoted to the development of the laundry business.

The managerial structure of the firm is informal in nature and an effort is made to keep the company atmosphere pleasant and open. The managers, office workers and foremen are paid on a salary basis; all other workers receive an hourly wage ranging from $2.55 for a laborer to $4.65 for a crane operator, plus fringe benefits. These wages are comparable with similar skill levels in other industries in the area. All of the hourly employees belong to the autoworkers union.

The company has a profit-sharing pension plan in which all employees participate. Employees become vested in the plan at the rate of 15 percent of the accrued amount each year. Thus, if the employee leaves the firm after 4 years service, he is entitled to receive 60 percent of his accrued profits and investment income.

The firm has had relatively satisfactory relations with the union since its introduction fifteen years ago. The occasional problems which come up have been negotiated quickly. Earl feels the relationship, although not entirely free of problems is working reasonably well.

Pressures for higher wages are strong in the Joliet area due mainly to the number and strength of the unions.

Control

Control of the scrap processing operation is exercised along regular organizational lines, with three foremen

responsible to the general foreman. Earl has established and operated standard cost control system for his scrap processing operations. He feels that he is in a better position than most salvage executives to understand the capabilities and limitations of such systems. Earl has worked closely with his controller and key supervisory personnel to develop a meaningful reporting system, and although cost allocation is currently possible only on an approximate basis, the reporting system has been useful in pointing out problems with under utilization of capacity.

The cost data is developed from labor input, utility costs, depreciation expense, and material cost by the accountant who also allocates indirect costs. The foremen are responsible for those costs over which they have some control, mainly labor costs, and the reports are monitored for trends which should be brought to the attention of the foremen for corrective action.

Since L. Farber is not a particularly large firm, Earl has confronted a basic trade-off decision in grappling with the cost control problem--i.e., whether a more detailed cost system would be of any more worth to the firm. The greater the reporting requirements, the more trouble it is for the foremen to keep reports and control day-to-day operations. Earl feels that the present system is sufficient to meet the needs of the firm and that any further sophistication of the control system would yield diminishing returns.

Overall financial control of the firm is provided by the yearly unaudited financial statements, which are summarized in Tables 2, 3, 4, and 5. The actual statements break expenses down into a good deal more detail than shown in order to facilitate close scrutiny of all major items.

Finance

The financial position of the firm is reasonably strong and little growth is anticipated or desired thereby minimizing potential risk. Earl is primarily concerned with expanding the laundry business. No major capital expenditures are anticipated for scrap processing equipment, and this should preclude the need for further external financing.

Table 2

L. FARBER, INC.

BALANCE SHEET FOR THE YEAR ENDING DECEMBER 31

Assets	1971	%	1970	%
Current Assets:				
Cash	$ 14,664	1.34	$ 27,864	2.18
Accounts Receivable	413,217	37.58	457,490	35.95
Inventory	294,159	26.75	372,673	29.29
Other	75,641	6.87	101,391	7.97
Total Current Assets	$797,681	72.54	$959,418	75.39
Fixed Assets:				
Autos and Trucks	$ 72,782	6.62	$ 64,829	5.01
Machinery and Equipment	165,432	15.04	153,890	12.09
Buildings, etc.	87,245	7.93	87,245	6.85
Leasehold Improvements	73,771	6.71	73,462	5.78
Land	2,000	0.18	2,000	0.16
Other	15,436	1.40	23,711	1.90
Total	$416,666	37.88	$405,137	31.79
Less Accumulated Depreciation	198,432	18.04	175,639	13.80
Total Fixed Assets	$218,234	19.84	$229,498	17.99
Other Non-Current Assets	$ 83,645	7.60	$ 83,472	6.56
Total Assets	$1,099,560	100%	$1,272,388	100%
Liabilities and Stockholders				
Current Liabilities:				
Accounts Payable	$348,432	31.68	$520,241	40.87
Notes Payable	237,269	21.58	257,771	20.26
Other	68,337	6.21	74,829	5.88
Total Current Liabilities	$654,038	59.47	$852,841	67.01
Long-Term Liabilities:				
Long-Term Notes	$165,505	15.00	$165,505	13.01
Total Long-Term Liabilities	$165,505	15.00	$165,505	13.01
Stockholders Equity:				
Common Stock	$ 5,000	0.45	$ 5,000	0.39
Paid-in Surplus	10,000	0.91	10,000	0.78
Retained Earnings	265,017	24.10	239,042	18.78
Total Stockholders Equity	$280,017	25.46	$254,042	19.95
Total Liabilities and Stockholders Equity	$1,099,560	100%	$1,272,388	100%

Table 3

L. FARBER, INC.

STATEMENT OF INCOME
FOR THE YEAR ENDING DECEMBER 31

	1971	%	1970	%
Sales - Net:	$3,106,897	96.99	$3,381,908	96.58
Other Sales	96,241	3.01	119,839	3.42
Total Sales	$3,203,138	100%	$3,501,747	100%
Cost of Goods Sold:				
Inventory Beginning	$ 378,515	11.82	$ 231,142	6.59
Plus Purchases	2,416,012	75.42	2,961,452	84.57
Less Inventory Ending	301,773	9.42	375,643	10.73
Net Material Cost	$2,492,754	77.83	$2,816,951	80.44
Cost of Processing and Handling	424,881	13.26	417,428	11.92
Total Cost of Goods Sold	$2,917,635	91.09	$2,234,379	92.36
Gross Profit	$ 285,503	8.91	$ 267,368	7.64
Operating Expenses	$ 204,533	6.38	$ 197,435	5.64
Net Operating Income	$ 80,970	2.53	$ 69,933	1.99
Less Other Expenses	39,620	1.24	19,565	0.56
Net Profit Before Taxes	$ 41,350	1.29	$ 50,368	1.43
Income Taxes:	$ 15,375	0.48	$ 18,209	0.52
Net Income	$ 25,975	0.81	$ 32,159	0.92

Table 4

L. FARBER, INC.

COST OF PROCESSING AND HANDLING

	1971	%	1970	%
Salaries, Wages, Benefits	$198,722	46.76	$202,084	48.42
Freight	9,633	2.26	17,569	4.22
Plant Supplies and Expenses	40,581	9.55	46,177	11.07
Maintenance	16,432	3.86	17,811	4.26
Depreciation	40,444	9.53	24,921	5.96
Rent				
Buildings	5,989	1.42	8,736	2.08
Equipment	37,061	8.73	39,450	9.44
Total Rent	43,050	10.15	48,186	11.52
Autos and Trucks Registrations and Insurance	11,435	2.68	12,568	3.03
Utilities	17,342	4.07	8,786	2.11
Other	47,242	11.14	39,326	9.41
Total	$424,881	100.00	417,428	100.00

Table 5

L. FARBER, INC.

STATEMENT OF SOURCES AND USES OF FUNDS
FOR THE YEAR ENDING DECEMBER 31, 1971

Source of Funds

Cash	$13,200	5.90%
Accounts Receivable	44,273	20.20
Inventory	78,514	35.90
Other Current Assets	25,750	11.90
Other Fixed Assets	8,275	3.80
Accumulated Depreciation	22,793	10.40
Retained Earnings	25,975	11.90
Total Sources	218,780	100.00

Uses of Funds

Autos and Trucks	7,953	3.70%
Machinery and Equipment	11,542	5.30
Leasehold Improvements	309	0.10
Other Non-Current Assets	173	0.10
Accounts Payable	171,809	78.50
Notes Payable	20,502	9.30
Other Current Liabilities	6,492	3.00
Total Uses	218,780	100.00

The capital structure of L. Farber is more heavily weighted towards the debt side than are other salvage firms studied, with the long-term debt equalling approximately 37 percent of total capitalization. This financing was obtained under very favorable conditions, however, at an interest rate of 7.1 percent with no principal payments due for 8 years. This arrangement is favorable in terms of maximizing return on owners' equity, with a minimum of risk to the shareholders. Because no growth is planned, this high-debt ratio is not perceived as overly risky by local banks.

The firm is closely held, with all stock owned by members of the Farber family. There are no distribution of profits after taxes since the shareholders have agreed that all profits should be retained in the firm for internal use.

An analysis of the financial statements for two recent years indicates that the gross profit for the firm is approximately 9 percent of sales, and that operating and other expenses account for 7 percent of sales, leaving a profit before taxes of approximately 1.3 percent of sales. While the ratio of net profits to sales has been rather low--approximately 0.8 percent--the return on shareholders equity has averaged about 3 percent.

Working capital management is something of a problem for the firm, primarily in the area of accounts receivable and payable. As stated earlier, the majority of scrap supplied is paid for within 40 to 70 days after receipt at Farber. This policy makes it possible for the firm to finance inventory levels and labor costs using the time lag in receipts from customers.

The major user of nickel scrap pays Farber immediately, but most other major scrap customers stretch their payables over longer periods.

When inventory buildups are accompanied by unfavorable payables/recievables balances, the firm is forced to seek short-term credit assistance from local banks. Fortunately, however, excellent banking relationships minimized these financing problems throughout the years.

Problems

L. Farber will probably face more severe problems in the future, particularly in ferrous processing. Pressures

are beginning to develop from two sources, raw materials supply and processed scrap demand.

The relatively high transportation cost for ferrous scrap, compared with other metallic scrap, limits the economic distance from the source to Farber's plant. Currently, most of the raw ferrous scrap is received from manufacturing plants and wreckers located east of Joliet, none of which is more than 60 miles away. The problem is that other larger scrap processors are beginning to compete with Farber for these sources. These competitors have baler-shears and other high capacity equipment requiring large capital outlays. Moreover, they are able to offer somewhat lower prices even though they are farther from the supplies, because they have large capacity and therefore somewhat lower costs.

Plans

L. Farber has reached a relatively steady state in terms of expansion and markets. As discussed in the preceding section, planning for the salvage operation mainly involves defensive strategies to maintain current market share and profitability due to the changing nature of raw material sources and markets.

SUPERIOR METAL COMPANY, INC.

A CASE STUDY

SUPERIOR METALS COMPANY

History

Superior Metals Company was founded by Ralph Pirelli around the year 1900 in the Southern community of Lenoxville. In the beginning the firm was small, like most others in the salvage industry, and dealt in scrap collection. The business grew slowly over the years as automobiles became a major source of scrap. Superior, managed by Pirelli and a partner names Roccio, took advantage of this trend, recovering auto parts and then selling them.

In 1935, Mr. Roccio left the partnership, and somewhat later, Ralph Pirelli's son, Frank, entered the business. Business activity was fairly steady during the 1930's.

During World War II, all operating activities of the business were sold because of the illness of the senior Pirelli and the absence of Frank Pirelli, who was serving in the U.S. Marine Corps.

Upon his return from the Pacific in 1945, Frank purchased a small building and lot and started his own scrap business with the intention of developing ferrous, nonferrous, and paper activities. He met with success and, by 1950, had developed sales to $2.5 million. In 1964, the firm became a ferrous scrap broker and processor for a specialty steel mill located 10 miles from Lenoxville. Since then, the ferrous brokerage operation has grown to include 100 scrap processors and, in 1971, accounted for approximately 40 percent of total sales of $6.2 million. Table 1 lists the business ventures in which Superior has become involved.

Current Overview

Company management organization is presented in the organization chart in Figure 1. This chart is for illustration only, since virtually everyone is in close proximity in the office headquarters where informal communication lines have developed.

Frank Pirelli was born and schooled in Lenoxville. He and his wife have three daughters and three sons. He is a member of Rotary, the Knights of Columbus and a social club of local business and professional men. He is also a member of civic committees, social welfare groups and his

Table 1

SUPERIOR METALS COMPANY

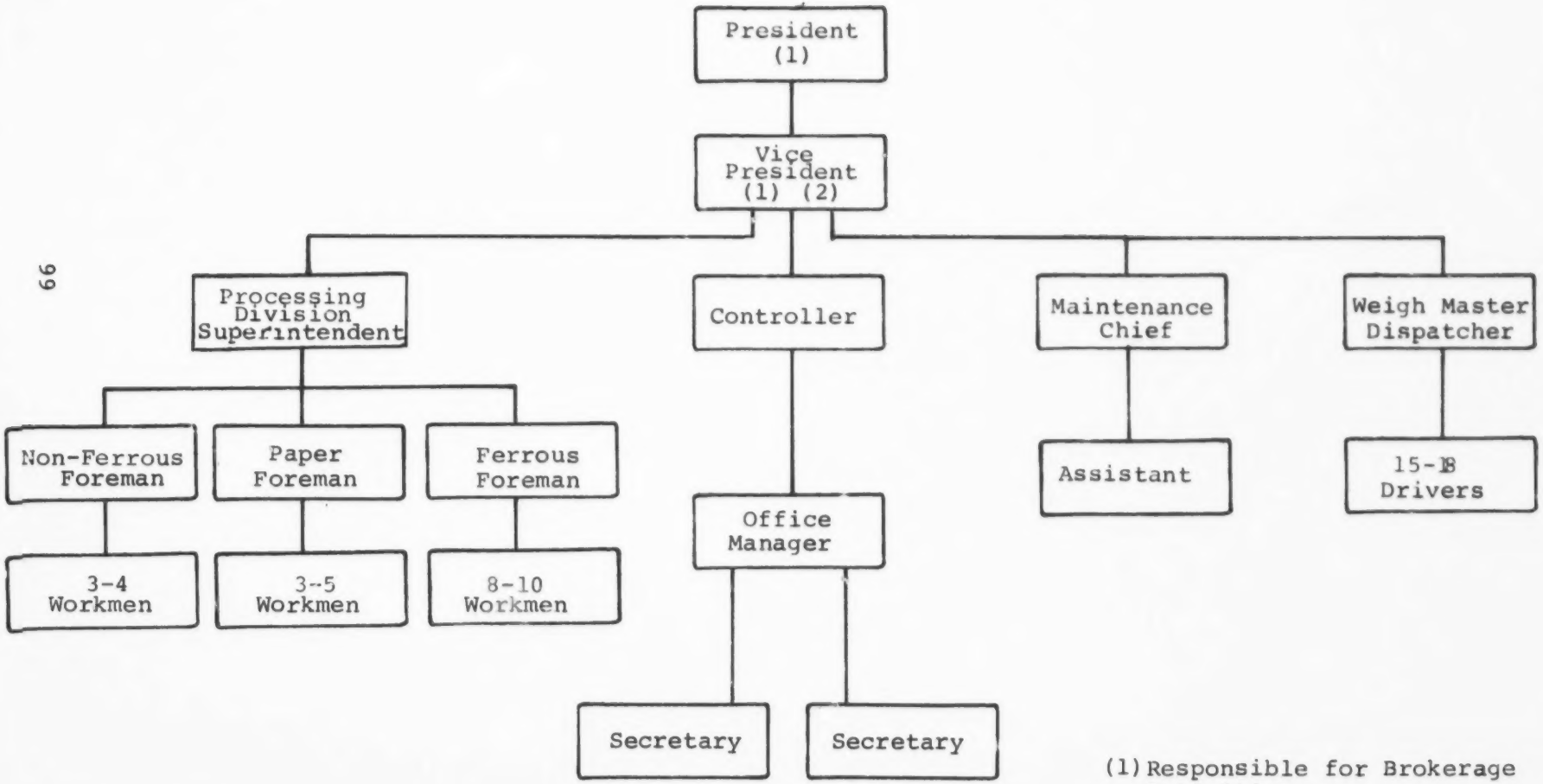
SALES BREAKDOWN

Activity	Percent of Sales
Brokerage Ferrous	38
Brokerage Non-Ferrous	5
Processing Ferrous	32
Processing Non-Ferrous	10
Processing Paper	5
Other:	
Equipment Sales and Rentals	10
Accommodation Sales	
Miscellaneous Supplies	

Figure 1

SUPERIOR METALS COMPANY

ORGANIZATION CHART



(1) Responsible for Brokerage Activities
(2) Responsible for Sales

church where he participates in the fund raising group and its men's club. He is a director of the Little League, having played in its first game in 1936. Except for a seven-month period in 1962 when he was restricted because of a broken leg, Frank Pirelli has been the chief executive officer of the firm.

Peter Pirelli was born in 1940. He received his Bachelor's degree from Rochester College, having majored in economics and minored in business administration. During his high school years and summers between college semesters, Peter spent much of his spare time working in the family business. Like his father, Frank, Peter is very active in community and church affairs. He is a member of the Kiwanis and Lion's Club and has, for some time, held positions of leadership in the church.

Les Middleton is also a native of Lenoxville and attended both high school and college with Peter Pirelli. He graduated with honors from Rochester College with a B.A. degree in accounting. Upon graduation, he joined a public accounting firm in New York. While employed with this firm, he renewed his friendship with Peter Pirelli, who encouraged him to join Superior. This he did, two years ago.

In addition to his duties as controller, Les has devoted much time to learning the scrap processing and brokerage business. He maintains close contact with the American Metal Markets quotations on current market prices and is rapidly becoming familiar with market conditions and projections, a major activity of Superior's brokerage business. He also has established extensive telephone contact with many of the suppliers and purchasers of scrap and has become knowledgeable in almost all aspects of these commercial relationships.

Trends

During the past three years, Superior has made a very large investment in equipment to increase the volume and efficiency of the processing operation. For instance, when new waste paper processing equipment was installed it was intentionally designed with extra capacity in order to meet the anticipated growth in paper fiber recycling.

Pollution factors have altered some of the company's markets. For example, some of Superior's customer foundries are finding it difficult to operate profitably when required

to install comprehensive pollution devices and are threatened with closing. In any case, reduction in ferrous purchases by these foundries is likely.

Superior is attempting to come to grips with the problem of growth without giving up the personal touch which it feels has been a major asset. To do this, it has strengthened its internal control system and is attempting to develop a comprehensive plan for expansion.

Facilities

Main Site

The company is located on twenty acres of land in the city area of Lenoxville. This location and most of the adjacent land is zoned for industrial use. It has experienced some problems concerning zoning of its plant, and these are explained later in this report.

Company headquarters are located on the main site in a modern one-story office building. The remainder of the site contains equipment for ferrous metal processing; a waste paper processing area; various warehouses for storage; a new maintenance building; and open storage areas. Figure 2 shows the layout of the plant and the placement of the major pieces of equipment.

Equipment

Superior utilizes major equipment which falls into two broad categories: handling equipment to move materials and processing equipment to segregate, cut, and compact the scrap.

In the first category, Superior owns 7 tractor-trucks and 15 heavy trailers of various capacities. It also has several container handling vehicles capable of off-loading and on-loading scrap containers at industrial sites, plus 2 mobile cranes with capacities of up to 20 tons for handling scrap within the plant.

In the second category, Superior has 4 shears for cutting metal scrap; a shredder for paper scrap; and 4 balers, which compact the scrap for easire handling. A complete listing of equipment and their original cost is shown in Table 2.

The company has added new equipment in the past few

Figure 2

SUPERIOR METALS COMPANY

PLANT LAYOUT

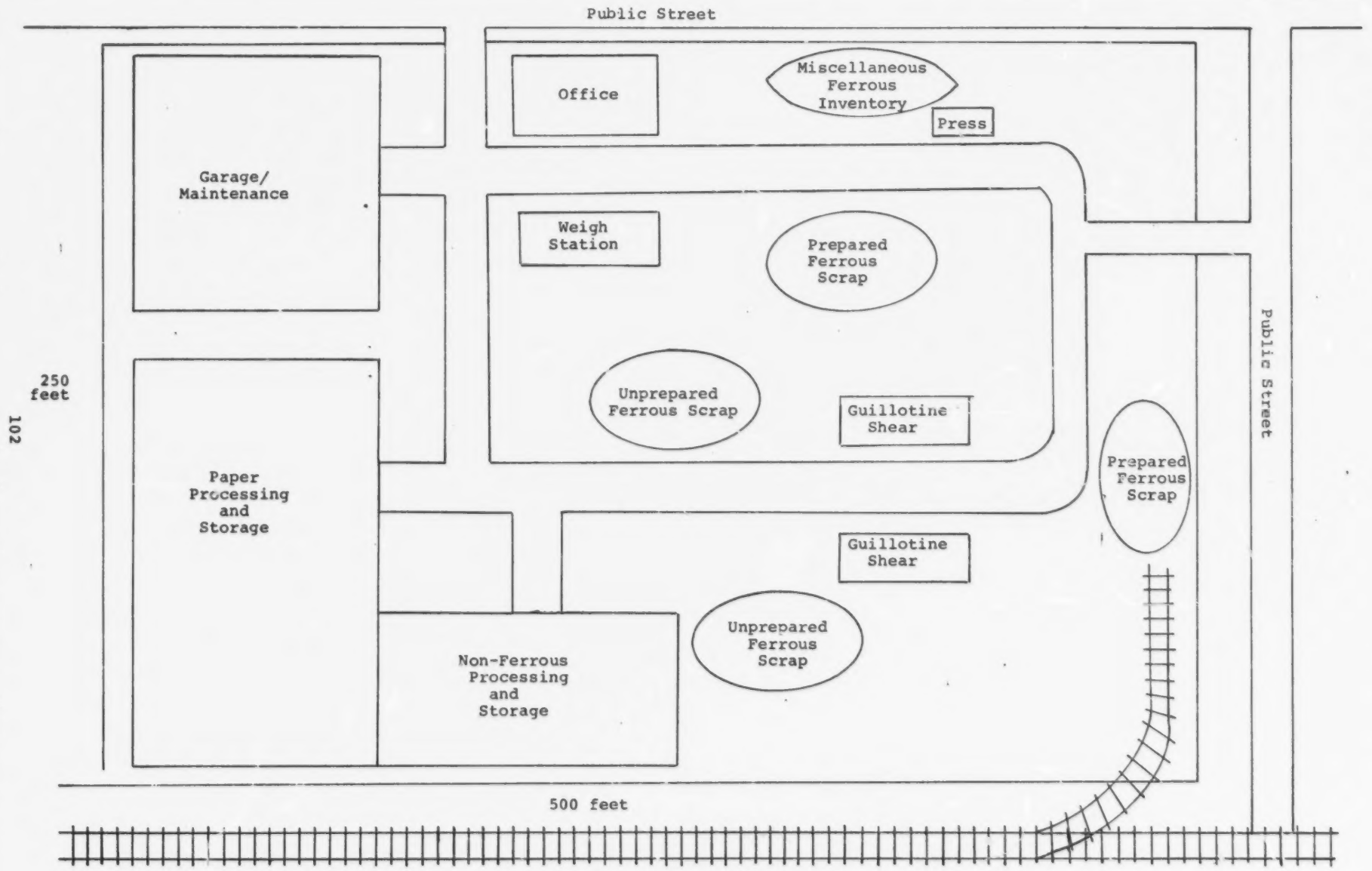


Table 2

SUPERIOR METALS COMPANY

EQUIPMENT SCHEDULE

Type	Number	Original Purchase Costs Average	Total
Processing Equipment:			
Balers			
Metal	3	$7,500	$22,500
Paper	1	50,000	50,000
Shears			
Small	2	6,000	12,000
Large		75,000	150,000
		Subtotal	$234,500
Materials Handling Equipment:			
Cranes	2	$25,000	$50,000
Trucks/Cars	3	5,000	15,000
Trailers	15	6,000	90,000
Tractors	7	15,000	105,000
Lift-Trucks	6	6,000	36,000
Container Trucks	8	12,000	96,000
Containers	100	200	20,000
		Subtotal	$412,800
		Total	$646,500

years. In 1969, it added two guillotine shears at a total cost of $150,000 with a total capacity of 70 tons of ferrous metal per day. Within the past two years, Superior has added a paper press and related equipment, at a cost of $60,000, to sort, shred, and bale waste paper. This equipment has a capacity of 200 tons per day. The cost of the above new equipment totals $210,000 and amounts to approximately 60 percent of all machinery and equipment, based on original costs.

Maintenance

The company's maintenance facility was completed in 1971 at a cost of $50,000. Presently, Superior has one well-trained mechanic who allocates 90 percent of his time to the fleet of trucks. The maintenance facility is capable of handling routine repairs; major repairs are handled outside the company. The remaining 10 percent of the mechanic's time is spent on the repair and maintenance of the processing equipment. Downtime has been minimal.

Processing Operations

Superior's scrap plant operation consists of collection and processing to meet consumer specifications. Almost all materials enter and leave the plant by truck. A rail siding is available but is used only when the company purchases scrap already loaded onto rail cars or sells scrap to a customer whose only means of receiving is by rail. Since shipping rates by rail are often much higher than by truck, Superior rarely uses the siding. Every truck which enters and leaves the processing area is weighed and inspected. The relationship of weight and grade determines the buying price as the materials enter the plant and the proposed selling price as they leave. One man, assisted by three clerical employees, operates the weigh station.

Ferrous Operation

Superior produces a wide variety of steel and cast scrap mainly for steel mills and for various local foundries. Because its electric furnaces must be run continuously for efficient operation, the mill will purchase all scrap of certain grades that Superior can deliver. These grades include: No. 1 and 2 Heavy Melting Steels, turnings, electric furnace bundles, as well as small amounts of other grades.

The foundry customers are small operations usually

producing a limited variety of castings. Each foundry therefore can use only a specific type of scrap. The grades most often used by Superior customers are Cupola Cast, No. 1 Machinery Cast, and Automotive Cast.

The ferrous scrap operation can be divided into two categories: scrap which needs no processing and can be delivered directly to the customer, and scrap which must be processed to meet customer specifications. The scrap which needs no processing usually consists of items such as machine turnings or small stamping press skeletons that are collected from manufacturing customers. They provide a fairly consistent product which can be taken by container directly from the manufacturer's location to the steel mill. This is the case, for example, with a manufacturer of metal cable that supplies bundles of cut up scrap cable to Superior. At this manufacturer's location, Superior provides containers ranging in size from 6 cu. yards to 20 cu. yards into which the bundles are placed. Full containers are removed by a specially adapted container vehicle and taken directly to the user mill.

Once a load of scrap is received and identified as needing further processing, it is moved to the processing area and placed on the unprepared scrap pile. The main processing operation (see Figure 3) consists of sorting, cleaning, cutting with both acetylene torches and guillotine shears, resorting and, finally, loading. Ferrous scrap with low density is segregated during the first sorting operation and placed in a press which compresses it into bundles.

Scrap is removed from the unprepared pile manually and by crane. The scrap is then visually sorted into four piles: pieces which are too large for the guillotine shears, pieces which need to be manually separated, pieces which will be moved to the press, and pieces of contaminants such as glass, paper, wood and nonferrous scrap which will be moved to other processing areas or discarded.

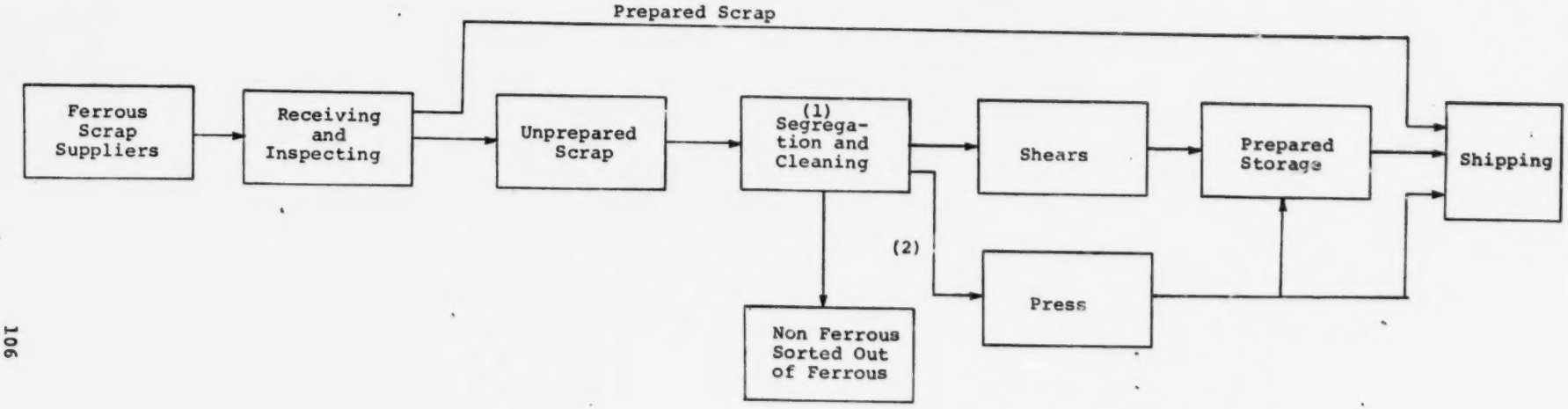
The cleaning operation involves removing manually the "tramp" items from the scrap as well as heavy accumulations of grease, tar, concrete or organic materials.

Pieces too large for the guillotine shears are manually removed from the unprepared pile and reduced in size with acetylene cutting torches. They are then replaced on the unprepared pile until removed by crane to the upper deck of the guillotine shear house. The pieces are

Figure 3

SUPERIOR METALS COMPANY

FERROUS METAL PROCESSING



Notes: (1) Manual sorting, acetylene torch, manual cleaning, etc.
(2) Low density items such as thin steel sheets, wire, etc.

then further sorted manually and placed on conveyors leading to the shears where the items are reduced in size to meet a particular grade specification. From the shears, items fall into a lower conveyor which swings over a wide area to place items in various locations, thereby segregating the finished product piles. From these piles, the scrap is loaded into Superior trucks for delivery to the customer.

Nonferrous Operations

The material flow through the nonferrous processing area is shown in Figure 4. If further processing is needed, the sequence is similar to that in the ferrous operation. The steps involve sorting, cleaning, reducing large pieces to manageable size with acetylene torches, cutting into small pieces with alligator shears, sorting into receptables such as 55-gallon drums, and loading into trucks for shipment, or moving to the paper warehouse for storage. Items with low density, such as aluminum, wire, and radiators are processed through a baler which compresses and ties the scrap together in standard size bundles. Some items, such as lead, are further processed through a smelter and are then either immediately shipped or placed in storage.

Paper Operation

The material flow through the paper processing area is shown in Figure 5. After trucks containing paper are weighed, they move to the side of the paper building where they are emptied onto a concrete floor. There, the paper is segregated into four categories: corrugated, mixed, news, and tab cards. The first three are low grades which usually contain impurities. The last category--tab cards--requires greater care to see that almost all impurities are removed.

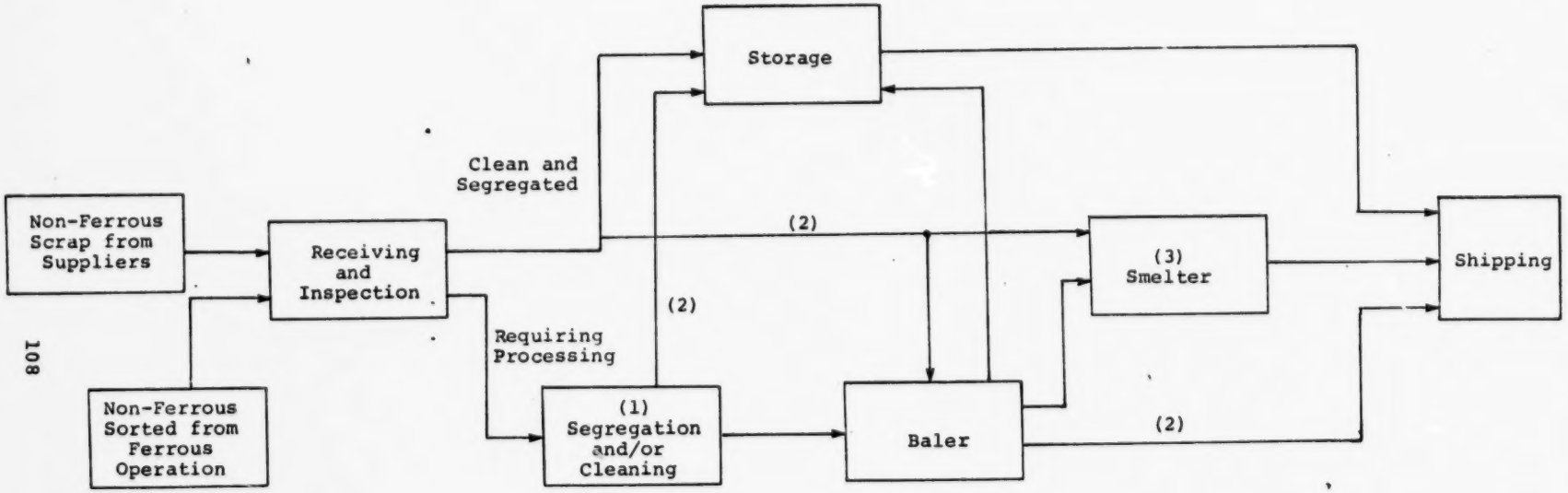
The shredder is scheduled by grade of paper. The paper is moved with the aid of a small front-end loader into the conveyor which then feeds the product into the 150 ton-per-day shredder. As the particular grade of paper is carried along the conveyor, it is further fine-sorted.

From the shredder, the paper is blown through a large diameter pipe to a cyclone separator on the roof where dirt and dust are removed. The shredded paper then drops to the baler unit. Upon receipt of sufficient materials, the baler unit is activated and compresses the paper into

Figure 4

SUPERIOR METALS COMPANY

NON-FERROUS METAL PROCESSING

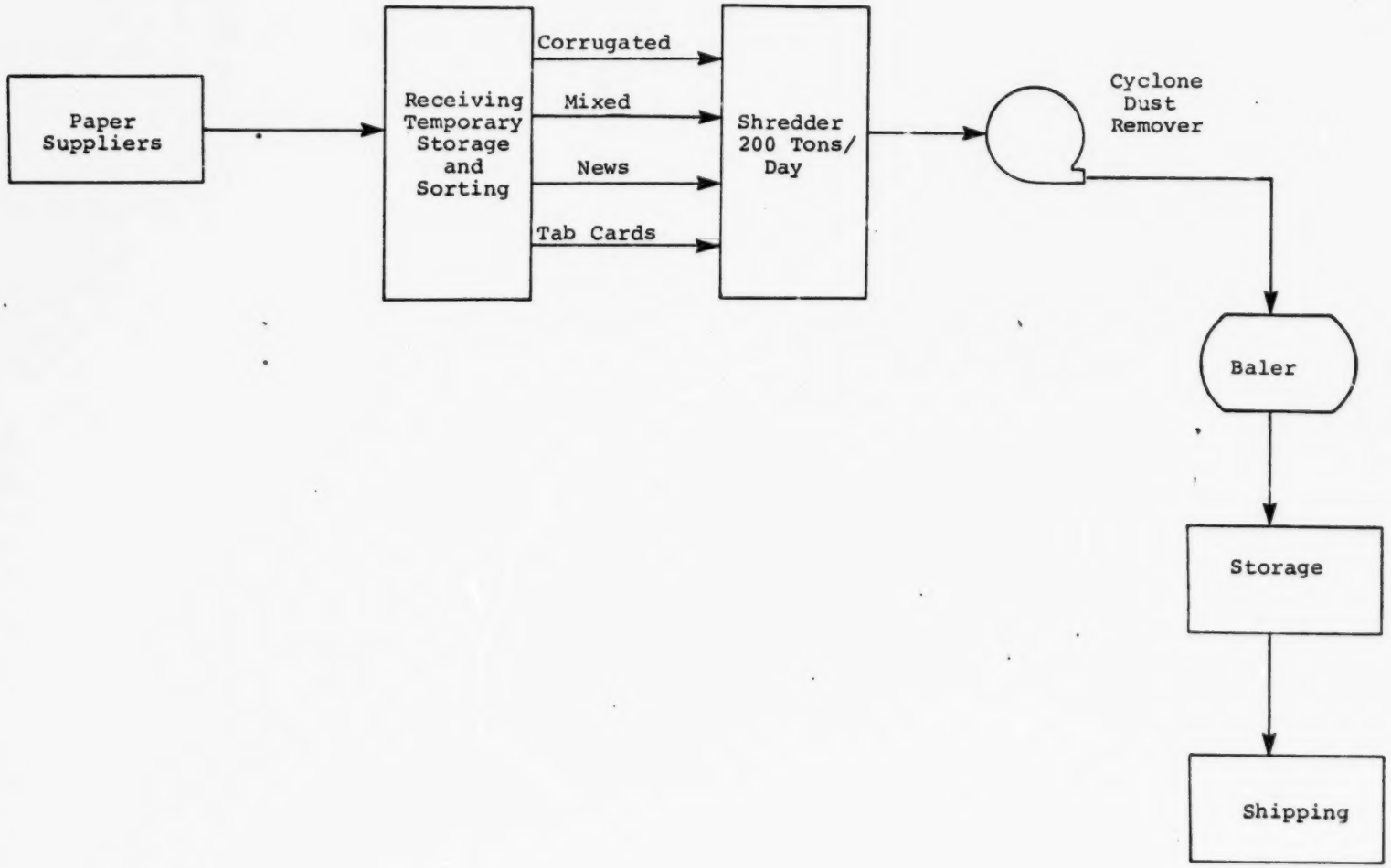


Notes: (1) Small shears, acetylene torch, manual sorting, etc.
(2) Segregated aluminum, brass, copper, bronze, lead, etc., in containers such as 55-gallon drums
(3) Smelter handles batches of different material

Figure 5

SUPERIOR METALS COMPANY

PAPER STOCK PROCESSING



approximately 1200 pound bales. The bales are then removed with a fork lift truck and transported to the section of the warehouse which keeps that particular grade. They are weighed in the process, a tag is prepared noting the bale number, weight and type of paper. A duplicate of this tag is then delivered to the front office, where appropriate entries are made in the inventory records.

Inventory Control System

Only the paper processing operation utilizes a formal inventory system. As each bale is removed from the processes, it is identified with a tag and a record is sent to the accounting office. Inventory records are not maintained for the various grades of ferrous scrap. The superintendent is generally aware of the status of ferrous operations and is able to keep a reasonably accurate record of each of the various grades.

The nonferrous foreman maintains an inventory in a notebook which he carries at all times. He is the only person who knows the approximate quantity and location of inventoried items. Balance sheet inventory is computed from the paper department's inventory records and from the plant superintendent's and the nonferrous foreman's figures.

Quality Control

A major task in the final sorting is to differentiate between ferrous scrap with different metallurgical compositions. This task is supervised by the plant superintendent. Most of his time is spent with the ferrous operation, which produces the largest volume and has the widest variety of metals. He must constantly be alert to the changing metal content of scrap so that scrap sent to customers remains consistent. Many times, sources of scrap will have their metallurgical composition or alloy altered. For instance, the automobile industry changed the composition of rear axles, producing them with a much higher carbon content. This change made these axles unsuitable for a particular foundry manufacturing high-strength valves.

The superintendent spends time visiting customers to keep himself aware of any problems they have regarding the quality of scrap input. Quality control visits and adjustments with the steel mill, however, are handled per-

sonally by either the president or vice president.

Buying and Selling

Superior is a medium-sized firm with approximately 45 per cent of sales from brokerage and 45 per cent from processing. Other of its business ventures are listed in Table 1. Ferrous scrap brokerage accounts for approximately 40 per cent of the company's gross sales.

The firm has a market of 175 to 200 independent scrap dealers in the five-state area around Lenoxville. It buys ferrous, nonferrous, and paper scrap from these and provides brokerage services to them. The size of the area it services is determined almost completely by shipping rates. Superior also receives scrap from 30 industrial sites within 40 miles of Lenoxville. Examples of the customers providing industrial scrap include manufacturers of aerospace equipment, cast iron pipes, trucks and trailers, and water heaters.

Frank or Peter Pirelli usually negotiate a contract with the manufacturer based on the value of the scrap at each location. The firm will charge a hauling fee if there is little or no value to the scrap or make a payment to the manufacturer for rights to remove more valuable scrap.

Superior sells nearly all its ferrous scrap from processors and brokers to one specialty steel mill, located 20 miles east of Lenoxville, with an annual sales volume of $400 million and with production capacity provided by 5 electric furnaces. The cast iron scrap that does not meet the mill's specifications is sold to foundries near Lenoxville. Superior's four grades of waste paper are sold mainly to two large paper companies. Superior sells the two high grades, tab cards and ledger paper, to other customers.

Nonferrous metals have a much higher market value per ton than do ferrous. However, the volume is much smaller, and the nonferrous markets are subject to wide swings in pricing. At the time of this writing, the nonferrous markets were generally depressed, causing large inventory buildup. Superior speculates in nonferrous metals with occasional stockpiling when prices seem low; it sells when prices have increased significantly.

The brokerage business is handled by the President and vice president, who operate mainly by telephone from their offices in Lenoxville. They do some travelling to maintain personal contact with their major suppliers and customers and to try to establish new contacts.

Their competition in the brokerage business consists of four other small, one-man operations that sell directly to the mill. Superior supplies approximtely 70 per cent of the scrap used by the mill and the four other dealers provide the remainder.

One of the success factors in the scrap business is a good knowledge of both the supplier and the user and the ability to offer the best possible service. Superior has been successful in part because it has emphasized a very personal and prompt response to the buying and selling situation. For instance, Superior has a policy of quick response to the daily demands of the mills, moving out scrap shipments within four to eight hours of a phone call.

Another feature offered by Superior is trucking service. Trucks which are owned and leased by Superior are used in various locations within its brokerage area. These trucks call on steady brokerage customers, pick up steel scrap from the scrap yard and deliver it to the steel mill. The trucks are often scheduled out of the home office; however, the drivers are usually able to do some of their own scheduling. The trucks make approximately five trips a day from various scrap dealers to the mill. This service is felt to be important since it eliminates the necessity of dealers purchasing their own trucks or paying for rail transportation.

Superior trucks are also used to provide rapid service to industrial contract customers. For example, one manufacturing firm chose Superior to haul industrial waste materials because Superior will respond more quickly than scrap dealers who are actually much closer.

Superior's size limits the amount of field selling that it can do. The firm does not have salesmen to extend the personal service that is its watchword, and, to a certain extent this tends to reduce growth potential.

Administration and Management

Superior's management style and performance is personal and informal. It stems from the desire of the President to provide a comprehensive individualized service to industry in this area.

There are approximately 30 hourly employees working for the firm. Although attempts have been made to unionize them, none has been successful and the employees do not seem interested in unionizing.

New employees receive at least the legal minimum wage and often more, depending on skills. Wage increases are made for good performance. Annual payroll is approximately $400,000.

Superior looks upon the employer-employee relationship with great pride and feels that personnel management is one of its strengths. The firm has strong selection criteria, including requirements for high school graduation and honorable discharge from military service. The average length of service with Superior is five years.

The company has a health plan and a pension plan. The trustee of the pension plan is the local bank. Each year the owners decide on the amount of money which will be divided among the members. To keep the contributions tax-free, this is never more than 15 per cent of an employee's wages. The plan is designed to give the individual a vested interest of 20 per cent after two years and 100 per cent after eight years. An employee can join the profit sharing plan eight months after joining Superior. The firm provides all of the input to the plan. The contributions accumulate to the credit of the employee and can be withdrawn under specified conditions, upon resignation or retirement. Superior has an annual dinner in July, at which time it announces the gross amount to be contributed to the profit sharing plan. Management looks upon this as a major event in the company and an important morale booster.

Control

Superior's control system prior to 1970 reflected the informal management style of the owners. It had been established by the President, with advice from his banker and the accounting firm that prepared his tax returns. All of

the internal duties had been the responsibility of Mrs. McConnell, a competent manager with great experience in the scrap industry. She and an accounting clerk performed all the accounting functions using a manual bookkeeping system.

In 1970 Les Middleton entered the firm as Controller and chief accountant. Mr. Middleton has initiated changes to increase the recording of cost accounting details. Ultimately he hopes to develop a system which will accurately match revenue and related cost. He has also begun preparing financial statements on a quarterly basis.

To date, extensive use of cost accounting and other analytical methods has not been formally undertaken. Mr. Middleton, however, devotes much of his time to the development of techniques which will increase the value of the accounting information.

Finance

Superior's financial policy is essentially conservative and typical of a small, closely-held company, in that it maintains a relatively large current ratio and is reluctant to utilize permanent debt.* In 1971 the current ratio was 2.69, which is considered a financially sound level. One-third of the assets were in cash while one-half consisted of receivables from Superior's largest customer. In 1970 the ratio was 2.1, a somewhat lower position than the firm traditionally maintains. The lower-than-average position was due to the reduced cash level in that year (see Tables 3 through 6).

Growth has traditionally been accomplished with funds generated internally. However, in 1971, Superior used long-term debt to purchase paper processing equipment and set up a paper storage warehouse. This was an unusual circumstance, and the firm continues to make other equipment purchases, such as trucks, out of current assets. In Table 6, Sources and Uses of Funds, it can be seen that in 1971 $241,458 was used to purchase capital equipment--autos and trucks $137,669, machinery and equipment $103,789. In addition, $64,787 was used to increase facilities

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* Ratio of current assets to current liabilities.

Table

SUPERIOR METALS COMPANY

BALANCE SHEET - DECEMBER 31

	1971	%	1970	%
Assets				
Current Assets:				
Cash	$ 285,814	21	$ 27,435	4
Accounts Receivable	552,920	41	357,213	55
Inventory	113,482	9	102,695	16
Other	8,293	1	9,716	2
Total Current Assets	$ 960,509	72	497,059	77
Fixed Assets:				
Autos and Trucks	$ 264,017	20	$126,348	19
Machinery and Equipment	341,761	25	237,972	37
Buildings	64,787	5		
Other	17,745	1	25,433	4
Total	$ 688,310	51	$389,753	60
Less Accum. Depreciation	305,507	23	238,615	37
Total Fixed Assets	$ 382,803	28	$151,138	23
Total Assets	$1,343,312	100	$648,197	100
Liabilities and Stockholders Equity				
Current Liabilities:				
Accounts Payable	$ 241,826	18	$171,824	27
Notes Payable (L/T Note Payments Due Within 1 Year)	28,948	2		
Other	85,392	7	64,860	10
Total Current Liabilities	$ 356,166	27	$236,684	37
Long-Term Liabilities:				
Notes Payable (Equipment Financing)	$ 307,598	23		
Stockholders Equity:				
Common Stock	$ 29,770	2	$ 19,500	3
Retained Earnings	649,778	48	392,013	60
Total Stockholders Equity	$ 679,548	50	$411,513	63
Total Liabilities and Stockholders Equity	$1,343,312	100	$648,197	100

Table 4

SUPERIOR METALS COMPANY

STATEMENT OF INCOME
FOR THE YEAR ENDING DECEMBER 31, 1971

		Percent
Sales:		
Sales (Materials, Brokerage)	$6,066,156	
Other Sales (Weighing & Miscellaneous)	2,175	
Total Sales	$6,068,331	100.0
Cost of Goods Sold:		
Inventory Beginning	$ 102,695	1.69
Plus Purchases	5,115,241	84.29
Less Inventory Ending	113,482	1.87
Net Material Cost	$5,104,454	84.11
Cost of Processing and Handling	666,114	10.98
Total Cost of Goods Sold	$5,770,568	95.09
Gross Profit	$ 297,763	4.91
Operating Expenses	158,421	2.61
Net Operating Income	$ 139,342	2.30
Other Income (Less Other Expenses)	<105>	.01
Net Profit Before Taxes	$ 139,237	2.29
Income Taxes	62,725	1.03
Net Income	$ 76,512	1.26

Table 5

SUPERIOR METALS COMPANY

COST OF PROCESSING AND HANDLING

		Percent
Salaries, Wages, Benefits	$279,855	42
Freight	154,203	23
Plant Supplies and Expenses	56,160	9
Maintenance	49,095	7
Depreciation	67,980	10
Rent	38,110	6
Autos and Trucks Registration and Insurance	7,179	1
Utilities	13,165	2
Other	368	
Total	$666,115	100

Table 6

SUPERIOR METALS COMPANY

STATEMENT OF SOURCES AND USES OF FUNDS
FOR THE YEAR ENDING DECEMBER 31, 1971

Sources of Funds	
Other Current Assets (Decrease in Unexpired Insurance Premiums)	$ 1,423
Other Fixed Assets (Deposit on Equipment)	7,688
Depreciation	66,892
Accounts Payable	70,002
Notes Payable	28,948
Other Current Liabilities:	
Profit Sharing Plan Contribution Payable	8,450
Accrued Taxes Payable	3,406
Accrued Payroll	8,676
Long-Term Notes Payable	307,598
Common Stock	10,270
Retained Earnings*	257,765
Total Sources	$771,118

Uses of Funds	
Cash	$258,379
Accounts Receivable	195,707
Inventory	10,787
Autos and Trucks	137,669
Machinery and Equipment	103,789
Real Estate	64,787
Total Uses	$771,118

*1971 Retained Income is listed as $58,856 while the increase in Retained Earnings is a greater value. The 1971 Balance Sheet appears to include a consolidation of a venture or ventures not consolidated on the 1970 Balance Sheet.

(real estate). Sources of these funds came from both long-term notes and retained earnings. It is noted in Table 6 that the large increase in the retained earnings and cash accounts came from an otherwise undefined consolidation of a venture.

Current asset management is similar to other firms studied--the owner/managers are in close contact with the ebb and flow of cash movement, purchases, sales, commissions and other financially related activites. With this knowledge and with their personal knowledge of the overall finances of the firm they are readily able to effectively control current assets and cash flow.

The firm's bank relations are excellent and short-term borrowing through a "line of credit" has been used in moderation. The line of credit enables Superior to borrow up to $300,000. The owners feel that this could be increased to $750,000 with no difficulty. In 1972 the construction of new facilities and the buildup of nonferrous inventories as a response to depressed markets brought the line of credit up to this $300,000 limit. It was anticipated that improvement in business conditions would allow liquidation of most of these short-term borrowings.

Problems

Superior has problems in two major areas: processing costs and plant location. The processing operation is one which the firm has not thoroughly evaluated. One reason is its present accounting system which does not record costs for the collection, handling and processing of scrap which is purchased and sold. Because it lacks data, Superior is not aware of the actual level of profitability of processed scrap compared to brokerage scrap. Management has not decided whether the time and effort which might be expended on improving internal operations would yield as large a profit improvement as would the effort expended on improving the brokerage operation or other areas.

Current plant location is a potential problem to Superior because of the possibility of community pressure forcing it to relocate. Superior is now situated next to the local community youth center and several proposals have been introduced which would use Superior's location in the center's expansion plans.

Plans

In the immediate future the firm plans to enlarge operations and must decide whether this should be done through internal operations improvement or brokerage, or both.

Superior feels that to expand the brokerage would require the least capital expense, but would require a larger staff to make telephone contacts and, more importantly, a full-time field person to call on old and potential new suppliers in an attempt to increase business.

Another facet of brokerage expansion would be finding additional consumers. Superior has studied the needs of scrap users within its region and has identified several who could use scrap if the firm could supply it.

Paper processing is a growing area of the business. The firm's shredder is capable of handling 150 tons of paper per 8-hour day. It is currently operating at approximately 15 percent of that capacity. Superior currently sells almost all of its output to two large paper companies in the area. Both have indicated that they intend to expand rapidly.

In the main, Superior processes paper recovered from manufacturing operations. It anticipates, however, that the public emphasis on recycling will make available to the firm large quantities of paper now entering the municipal waste stream.

The Pirellis are knowledgeable about municipal solid waste problems and the recycling potential. Both expressed interest in these areas and thought they might play a major part in recycling of municipal waste. They have on numerous occasions met with local groups concerned with solid waste problems and are aware of the magnitude of the problem. Still, they have expressed concern over the profitability and feasibility of recycling. That such a program might require a large capital investment presents a deterrent. However, they indicated that marketing the recovered elements from a resource recovery plant which handled municipal waste would be a project which might be handled with ease. The Pirellis feel that Superior is capable of dealing with local volunteer groups and marketing the products of such an operation.